

SEQUENCE LISTING

<110> The Procter & Gamble Company
Isfort, Robert
Sheldon, Russell

<120> Methods for Identifying Compounds for Regulating Muscle Mass or Function Using Corticotropin Releasing Factor Receptors

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<140> Not Yet Assigned
<141> 2003-08-27

<150> US 09/799,978
<151> 2001-03-06

<160> 44

<170> PatentIn version 3.0

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His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu Gly Leu Asn

283

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427

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Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Val His			
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Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr 190
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Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 205
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Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys
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Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe
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cgt	gcc	cga	gtg	gcc	cgt	gcc	atg	tcc	atc	ccc	acc	tcc	cca	acc	cgt		1107
Arg	Ala	Arg	Val	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser	Pro	Thr	Arg		
				350				355				360					
gtc	agc	ttt	cac	agc	atc	aag	cag	tcc	aca	gca	gtc	tga					1146
Val	Ser	Phe	His	Ser	Ile	Lys	Gln	Ser	Thr	Ala	Val						
				365				370				375					
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Met	Gly	Gly	His	Pro	Gln	Leu	Arg	Leu	Val	Lys	Ala	Leu	Leu	Leu			
1					5				10				15				
Gly	Leu	Asn	Pro	Val	Ser	Ala	Ser	Leu	Gln	Asp	Gln	His	Cys	Glu	Ser		
					20				25				30				
Leu	Ser	Leu	Ala	Ser	Asn	Ile	Ser	Asp	Asn	Gly	Tyr	Arg	Glu	Cys	Leu		
					35				40				45				
Ala	Asn	Gly	Ser	Trp	Ala	Ala	Arg	Val	Asn	Tyr	Ser	Glu	Cys	Gln	Glu		
					50				55				60				
Ile	Leu	Asn	Glu	Glu	Lys	Lys	Ser	Lys	Val	His	Tyr	His	Val	Ala	Val		
					65				70				75				80
Ile	Ile	Asn	Tyr	Leu	Gly	His	Cys	Ile	Ser	Leu	Val	Ala	Leu	Leu	Val		
					85				90				95				
Ala	Phe	Val	Leu	Phe	Leu	Arg	Leu	Arg	Ser	Ile	Arg	Cys	Leu	Arg	Asn		
					100				105				110				
Ile	Ile	His	Trp	Asn	Leu	Ile	Ser	Ala	Phe	Ile	Leu	Arg	Asn	Ala	Thr		
					115				120				125				

Trp Phe Val Val Gln Leu Thr Met Ser Pro Glu Val His Gln Ser Asn
130 135 140

Val Gly Trp Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val
145 150 155 160

Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala
165 170 175

Ile Val Leu Thr Tyr Ser Thr Asp Arg Leu Arg Lys Trp Met Phe Ile
180 185 190

Cys Ile Gly Trp Gly Val Pro Phe Pro Ile Ile Val Ala Trp Ala Ile
195 200 205

Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Pro
210 215 220

Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu
225 230 235 240

Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr
245 250 255

Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala
260 265 270

Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met
275 280 285

Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val Val Phe
290 295 300

Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val Ser
305 310 315 320

Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Ile Arg Lys
325 330 335

Arg Trp His Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val Ala
340 345 350

Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His Ser
355 360 365

Ile Lys Gln Ser Thr Ala Val		
370	375	
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Met Gly Gly His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu		
1 5 10 15		
ggg ctg aac ccc gtc tct gcc tcc ctc cag gac cag ctc gag agc		96
Gly Leu Asn Pro Val Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser		
20 25 30		
ctg tcc ctg gcc agc aac atc tca gga ctg cag tgc aac gca tcc gtg		144
Leu Ser Leu Ala Ser Asn Ile Ser Gly Leu Gln Cys Asn Ala Ser Val		
35 40 45		
gac ctc att ggc acc tgc tgg ccc cgc agc cct gcg ggg cag cta gtg		192
Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val		
50 55 60		
gtt cg cg ccc tgc cct gcc ttt ttc tat ggt gtc cgc tac aat acc aca		240
Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr		
65 70 75 80		
aac aat ggc tac cg gag tgc ctg gcc aat ggc agc tgg gcc gcc cgc		288
Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg		
85 90 95		
gtg aat tac tcc gag tgc cag gag atc ctc aat gag gag aaa aaa agc		336
Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser		
100 105 110		
aag gtg cac tac cat gtc gca gtc atc atc aac tac ctg ggc cac tgt		384
Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys		
115 120 125		
atc tcc ctg gtg gcc ctc ctg gtg gcc ttt gtc ctc ttt ctg cgg ctc		432
Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu		
130 135 140		
agg agc atc cg gtc ctg cga aac atc atc cac tgg aac ctc atc tcc		480
Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser		
145 150 155 160		
gcc ttc atc ctg cgc aac gcc acc tgg ttc gtg gtc cag cta acc atg		528
Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met		
165 170 175		
agc ccc gag gtc cac cag agc aac gtg ggc tgg tgc agg ttg gtg aca		576
Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr		
180 185 190		

gcc gcc tac aac tac ttc cat gtg acc aac ttc ttc tgg atg ttc ggc Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205	624
gag ggc tgc tac ctg cac aca gcc atc gtg ctc acc tac tcc act gac Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp 210 215 220	672
cgg ctg cgc aaa tgg atg ttc atc tgc att ggc tgg ggt gtg ccc ttc Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe 225 230 235 240	720
ccc atc att gtg gcc tgg gcc att ggg aag ctg tac tac gac aat gag Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255	768
aag tgc tgg ttt ggc aaa agg cct ggg gtg tac acc gac tac atc tac Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr 260 265 270	816
cag ggc ccc atg atc ctg gtc ctg ctg atc aat ttc atc ttc ctt ttc Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
aac atc gtc cgc atc ctc atg acc aag ctc cgg gca tcc acc acg tct Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser 290 295 300	912
gag acc att cag tac agg aag gct gtg aaa gcc act ctg gtg ctg ctg Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
ccc ctc ctg ggc atc acc tac atg ctg ttc gtc aat ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu 325 330 335	1008
gat gag gtc tcc cgg gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu 340 345 350	1056
tcc ttc cag gtc cgt tct gcc atc cgg aag agg tgg cac cgg tgg cag Ser Phe Gln Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln 355 360 365	1104
gac aag cac tcg atc cgt gcc cga gtg gcc cgt gcc atg tcc atc ccc Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro 370 375 380	1152
acc tcc cca acc cgt gtc agc ttt cac agc atc aag cag tcc aca gca Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala 385 390 395 400	1200
gtc tga Val	1206

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<212> PRT

<213> Homo sapiens

<400> 8

Met Gly Gly His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu
1 5 10 15

Gly Leu Asn Pro Val Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser
20 25 30

Leu Ser Leu Ala Ser Asn Ile Ser Gly Leu Gln Cys Asn Ala Ser Val
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser
100 105 110

Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp
210 215 220

Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe

225

230

235

240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu
245 250 255

Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr
260 265 270

Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe
275 280 285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser
290 295 300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu
305 310 315 320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu
325 330 335

Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu
340 345 350

Ser Phe Gln Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln
355 360 365

Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro
370 375 380

Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala
385 390 395 400

Val

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<213> Homo sapiens

<220>
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<222> (1)..(1236)

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Met Asp Ala Ala Leu Leu His Ser Leu Leu Glu Ala Asn Cys Ser Leu
1 5 10 15

48

gcg ctg gct gaa gag ctg ctc ttg gac ggc tgg ggg cca ccc ctg gac Ala Leu Ala Glu Glu Leu Leu Asp Gly Trp Gly Pro Pro Leu Asp 20 25 30	96
ccc gag ggt ccc tac tcc tac tgc aac acg acc ttg gac cag atc gga Pro Glu Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly 35 40 45	144
acg tgc tgg ccc cgc agc gct gcc gga gcc ctc gtg gag agg ccg tgc Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys 50 55 60	192
ccc gag tac ttc aac ggc gtc aag tac aac acg acc cgg aat gcc tat Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr 65 70 75 80	240
cga gaa tgc ttg gag aat ggg acg tgg gcc tca aag atc aac tac tca Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser 85 90 95	288
cag tgt gag ccc att ttg gat gac aag cag agg aag tat gac ctg cac Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His 100 105 110	336
tac cgc atc gcc ctt gtc aac tac ctg ggc cac tgc gta tct gtg Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val Ser Val 115 120 125	384
gca gcc ctg gtg gcc ttc ctg ctt ttc ctg gcc ctg cgg agc att Ala Ala Leu Val Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile 130 135 140	432
cgc tgt ctg cgg aat gtg att cac tgg aac ctc atc acc acc ttt atc Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile 145 150 155 160	480
ctg cga aat gtc atg tgg ttc ctg ctg cag ctc gtt gac cat gaa gtg Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His Glu Val 165 170 175	528
cac gag agc aat gag gtc tgg tgc cac tgc atc acc acc atc ttc aac His Glu Ser Asn Glu Val Trp Cys His Cys Ile Thr Thr Ile Phe Asn 180 185 190	576
tac ttc gtg gtg acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr 195 200 205	624
ctg cac acg gcc att gtc atg acc tac tcc act gag cgc ctg cgc aag Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys 210 215 220	672
tgc ctc ttc ctc atc gga tgg tgc atc ccc ttc ccc atc atc gtc Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val 225 230 235 240	720
gcc tgg gcc atc ggc aag ctc tac tat gag aat gaa cag tgc tgg ttt Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe 245 250 255	768
ggc aag gag cct ggc gac ctg gtg gac tac atc tac caa ggc ccc atc	816

Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile			
260	265	270	
att ctc gtg ctc ctg atc aat ttc gta ttt ctg ttc aac atc gtc agg		864	
Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg			
275	280	285	
atc cta atg aca aag tta cgc gcg tcc acc aca tcc gag aca atc cag		912	
Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln			
290	295	300	
tac agg aag gca gtg aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc		960	
Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly			
305	310	315	320
atc acc tac atg ctc ttc gtc aat ccc ggg gag gac gac ctg tca		1008	
Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser			
325	330	335	
cag atc atg ttc atc tat ttc aac tcc ttc ctg cag tcg ttc cag ggt		1056	
Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly			
340	345	350	
ttc ttc gtg tct gtc ttc tac tgc ttc aat gga gag gtg cgc tca		1104	
Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser			
355	360	365	
gcc gtg agg aag agg tgg cac cgc tgg cag gac cat cac tcc ctt cga		1152	
Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg			
370	375	380	
gtc ccc atg gcc cggtt ccc atc cct aca tca ccc aca cggtt atc		1200	
Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile			
385	390	395	400
agc ttc cac agc atc aag cag acg gcc gct gtg tga cccctcggtc		1246	
Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val			
405	410		
gccccacccgc acagctcccc tgtcctcctc caccttcttc ctctgggttc tctgtgctgg		1306	
gcaggctctc gtggggcagg agatgggagg ggagagacca gctctccagc ctggcaggaa		1366	
agaggggtg cggcagccaa gggggactgc aaggcacagg gatgagtggg ggccaccagg		1426	
ctcagcgcaa gaggaagcag agggattca caggaccccc tgagaagagc cagtcagatg		1486	
tctgcaggca tttgcccata ccagcctctc tggccaggc cttactgggc ccagagcaga		1546	
gaaggacctg tccaacacac acagctattt atagtagcag acacagggct cccctgcct		1606	
actcatggag ccagcagcca ggcaatggtg tggccctgca ctggccctt gactccacac		1666	
tcagtggcgc cctgcagttt ggtgggttaa cgccaagcaa agatcagtt tggctgcctt		1726	
atccccaggc tgtcacccatg agaggctcac ttgtacccca ccctgttcct gtgtcccctc		1786	
cccaaggccatc ctccccgcct tgggggctcc atgaaggatg caggcttcca ggcctggctt		1846	
cctctttgg gagacccctt ctctgcctag tccacagatt aggcaatcaa ggaagacgcc		1906	

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aggcatggag gagggaggcg tgggatggga atagcagaac caccatgtct tcagtgattg 2026
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tgtgaaataa accatgcctc ttgg 2110

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<211> 411
<212> PRT
<213> Homo sapiens

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Ala Leu Ala Glu Glu Leu Leu Asp Gly Trp Gly Pro Pro Leu Asp
30
20 25
Pro Glu Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly
45
35 40
Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys
60
50 55
Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr
80
65 70 75
Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser
95
85 90
Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His
110
100 105
Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val Ser Val
125
115 120
Ala Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile
140
130 135
Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile
160
145 150 155
Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His Glu Val
175
165 170
His Glu Ser Asn Glu Val Trp Cys His Cys Ile Thr Thr Ile Phe A

180	185	190	
Tyr Phe Val Val Thr Asn Phe Phe	Trp Met Phe Val Glu Gly Cys Tyr		
195	200	205	
Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys			
210	215	220	
Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val			
225	230	235	240
Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe			
245	250	255	260
Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile			
265	270	275	280
Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg			
275	280	285	290
Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln			
290	295	300	305
Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly			
305	310	315	320
Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser			
325	330	335	340
Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly			
340	345	350	355
Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser			
355	360	365	370
Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg			
370	375	380	385
Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile			
385	390	395	400
Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val			
405	410		

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<211> 1600

<212> DNA
 <213> Homo sapiens

 <220>
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 <222> (71)..(1387)

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 cactactggc atg agg ggt ccc tca ggg ccc cca ggc ctc ctc tac gtc 109
 Met Arg Gly Pro Ser Gly Pro Pro Gly Leu Leu Tyr Val
 1 5 10

 cca cac ctc ctc tgc ctg ctc ctc ctc cca ccg ccg ctc caa 157
 Pro His Leu Leu Leu Cys Leu Leu Cys Leu Leu Pro Pro Pro Leu Gln
 15 20 25

 tac gca gcc ggg cag agc cag atg ccc aaa gac cag ccc ctg tgg gca 205
 Tyr Ala Ala Gly Gln Ser Gln Met Pro Lys Asp Gln Pro Leu Trp Ala
 30 35 40 45

 ctt ctg gag cag tac tgc cac acc atc acc ctc acc aac ctc tca 253
 Leu Leu Glu Gln Tyr Cys His Thr Ile Met Thr Leu Thr Asn Leu Ser
 50 55 60

 ggt ccc tac tcc tac tgc aac acg acc ttg gac cag atc gga acg tgc 301
 Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys
 65 70 75

 tgg ccc cgc agc gct gcc gga gcc ctc gtg gag agg ccg tgc ccc gag 349
 Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu
 80 85 90

 tac ttc aac ggc gtc aag tac aac acg acc cgg aat gcc tat cga gaa 397
 Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu
 95 100 105

 tgc ttg gag aat ggg acg tgg gcc tca aag atc aac tac tca cag tgt 445
 Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys
 110 115 120 125

 gag ccc att ttg gat gac aag cag agg aag tat gac ctg cac tac cgc 493
 Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg
 130 135 140

 atc gcc ctt gtc gtc aac tac ctg ggc cac tgc gta tct gtg gca gcc 541
 Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala
 145 150 155

 ctg gtg gcc gcc ttc ctg ctt ttc ctg gcc ctg cgg agc att cgc tgt 589
 Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys
 160 165 170

 ctg cgg aat gtg att cac tgg aac ctc atc acc acc ttt atc ctg cga 637
 Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg
 175 180 185

 aat gtc atg tgg ttc ctg ctg cag ctc gtt gac cat gaa gtg cac gag 685
 Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu
 190 195 200 205

733	agc aat gag gtc tgg tgc cgc tgc atc acc acc atc ttc aac tac ttc Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe 210 215 220
781	gtg gtg acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac ctg cac Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His 225 230 235
829	acg gcc att gtc atg acc tac tcc act gag cgc ctg cgc aag tgc ctc Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu 240 245 250
877	ttc ctc ttc atc gga tgg tgc atc ccc ttc ccc atc atc gtc gcc tgg Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp 255 260 265
925	gcc atc ggc aag ctc tac tat gag aat gaa cag tgc tgg ttt ggc aag Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys 270 275 280 285
973	gag cct ggc gac ctg gtg gac tac atc tac caa ggc ccc atc att ctc Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu 290 295 300
1021	gtg ctc ctg atc aat ttc gta ttt ctg ttc aac atc gtc agg atc cta Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu 305 310 315
1069	atg aca aag tta cgc gcg tcc acc aca tcc gag aca atc cag tac agg Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg 320 325 330
1117	aag gca gtg aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc atc acc Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr 335 340 345
1165	tac atg ctc ttc ttc gtc aat ccc ggg gag gac gac ctg tca cag atc Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile 350 355 360 365
1213	atg ttc atc tat ttc aac tcc ttc ctg cag tcg ttc cag ggt ttc ttc Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe 370 375 380
1261	gtg tct gtc ttc tac tgc ttc aat gga gag gtg cgc tca gcc gtg Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val 385 390 395
1309	agg aag agg tgg cac cgc tgg cag gac cat cac tcc ctt cga gtc ccc Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro 400 405 410
1357	atg gcc cgg gcc atg tcc atc cct aca tca ccc aca cgg atc agc ttc Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe 415 420 425
1407	cac agc atc aag cag acg gcc gct gtg tga cccctcggtc gccccacctgc His Ser Ile Lys Gln Thr Ala Ala Val 430 435

acagctcccc tgcctcctc caccttcttc ctctgggttc tctgtgctgg gcaggcttc 1467
gtggggcagg agatgggagg ggagagacca gctctccagc ctggcagggaa agagggggtg 1527
cggcagccaa gggggactgc aaggcacagg gatgagtggg ggccaccagg ctcagcgcaa 1587
gaggaagcag agg 1600

<210> 12
<211> 438
<212> PRT
<213> Homo sapiens

<400> 12

Met Arg Gly Pro Ser Gly Pro Pro Gly Leu Leu Tyr Val Pro His Leu
1 5 10 15

Leu Leu Cys Leu Leu Cys Leu Leu Pro Pro Pro Leu Gln Ala Ala
20 25 30

Gly Gln Ser Gln Met Pro Lys Asp Gln Pro Leu Trp Ala Leu Leu Glu
35 40 45

Gln Tyr Cys His Thr Ile Met Thr Leu Thr Asn Leu Ser Gly Pro Tyr
50 55 60

Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Arg
65 70 75 80

Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn
85 90 95

Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu
100 105 110

Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys Glu Pro Ile
115 120 125

Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu
130 135 140

Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala Leu Val Ala
145 150 155 160

Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys Leu Arg Asn
165 170 175

Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Val Met

180	185	190
Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu Ser Asn Glu		
195	200	205
Val Trp Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr		
210	215	220
Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile		
225	230	235
Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu Phe Leu Phe		
245	250	255
Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly		
260	265	270
Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly		
275	280	285
Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu		
290	295	300
Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys		
305	310	315
Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val		
325	330	335
Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu		
340	345	350
Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Met Phe Ile		
355	360	365
Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val		
370	375	380
Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg		
385	390	395
Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro Met Ala Arg		
405	410	415
Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile		
420	425	430

Lys Gln Thr Ala Ala Val
435

<210> 13
<211> 1558
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (152)..(1345)

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cactgcacct ggccaagaat ccgaatggat tcaaagatac cttgaaataa ttccctcaatg 120
caacacacac acatatgcc a gggttggtca a atg gga aga gag cct tgg cct 172
Met Gly Arg Glu Pro Trp Pro
1 5

gaa gac agg gac ctg ggc ttt cct cag ctc ttc tgc caa ggt ccc tac 220
Glu Asp Arg Asp Leu Gly Phe Pro Gln Leu Phe Cys Gln Gly Pro Tyr
10 15 20

tcc tac tgc aac acg acc ttg gac cag atc gga acg tgc tgg ccc cgc 268
Ser Tyr Cys Asn Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Arg
25 30 35

agc gct gcc gga gcc ctc gtg gag agg ccg tgc ccc gag tac ttc aac 316
Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn
40 45 50 55

ggc gtc aag tac aac acg acc cgg aat gcc tat cga gaa tgc ttg gag 364
Gly Val Lys Tyr Asn Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu
60 65 70

aat ggg acg tgg gcc tca aag atc aac tac tca cag tgt gag ccc att 412
Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys Glu Pro Ile
75 80 85

ttg gat gac aag cag agg aag tat gac ctg cac tac cgc atc gcc ctt 460
Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu
90 95 100

gtc gtc aac tac ctg ggc cac tgc gta tct gtg gca gcc ctg gtg gcc 508
Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala Leu Val Ala
105 110 115

gcc ttc ctg ctt ttc ctg gcc ctg cgg aac att cgc tgt ctg cgg aat 556
Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys Leu Arg Asn
120 125 130 135

gtg att cac tgg aac ctc atc acc acc ttt atc ctg cga aat gtc atg 604
Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Val Met
140 145 150

tgg ttc ctg ctg cag ctc gtt gac cat gaa gtg cac gag agc aat gag 652

Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu Ser Asn Glu 155 160 165 gtc tgg tgc cgc tgc atc acc acc atc ttc aac tac ttc gtg gtg acc Val Trp Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr 170 175 180 aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac ctg cac acg gcc att Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile 185 190 195 gtc atg acc tac tcc act gag cgc ctg cgc aag tgc ctc ttc ctc ttc Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu Phe Leu Phe 200 205 210 215 atc gga tgg tgc atc ccc ttc ccc atc atc gtc gcc tgg gcc atc ggc Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly 220 225 230 aag ctc tac tat gag aat gaa cag tgc tgg ttt ggc aag gag cct ggc Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly 235 240 245 gac ctg gtc gac tac atc tac caa ggc ccc atc att ctc gtg ctc ctg Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu 250 255 260 atc aat ttc gta ttt ctg ttc aac atc gtc agg atc cta atg aca aag Ile Asn Phe Val Phe Leu Asn Ile Val Arg Ile Leu Met Thr Lys 265 270 275 tta cgc gcg tcc acc aca tcc gag aca atc cag tac agg aag gca gtg Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val 280 285 290 295 aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc atc acc tac atg ctc Lys Ala Thr Leu Val Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu 300 305 310 ttc ttc gtc aat ccc ggg gag gac gac ctg tca cag atc atg ttc atc Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Met Phe Ile 315 320 325 tat ttc aac tcc ttc ctg cag tcg ttc cag ggt ttc ttc gtg tct gtc Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val 330 335 340 ttc tac tgc ttc ttc aat gga gag gtg cgc tca gcc gtg agg aag agg Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg 345 350 355 tgg cac cgc tgg cag gac cat cac tcc ctt cga gtc ccc atg gcc cgg Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro Met Ala Arg 360 365 370 375 gcc atg tcc atc cct aca tca ccc aca cgg atc agc ttc cac agc atc Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile 380 385 390 aag cag acg gcc gct gtg tga cccctcggtc gccccacctgc acagctcccc Lys Gln Thr Ala Ala Val	165 700 748 796 844 892 940 988 1036 1084 1132 1180 1228 1276 1324 1375
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395

tgtccttc cacccttcttc ctctggggttc tctgtgctgg gcaggcttc gtggggcagg 1435
agatgggagg ggagagacca gctctccagc ctggcaggaa agagggggtg cgccagccaa 1495
gggggactgc aaggcacagg gatgagtggg ggccaccagg ctcagcgcaa gaggaagcag 1555
agg 1558

<210> 14
<211> 397
<212> PRT
<213> Homo sapiens

<400> 14

Met Gly Arg Glu Pro Trp Pro Glu Asp Arg Asp Leu Gly Phe Pro Gln
1 5 10 15

Leu Phe Cys Gln Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln
20 25 30

Ile Gly Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg
35 40 45

Pro Cys Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn
50 55 60

Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn
65 70 75 80

Tyr Ser Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp
85 90 95

Leu His Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val
100 105 110

Ser Val Ala Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg
115 120 125

Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr
130 135 140

Phe Ile Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His
145 150 155 160

Glu Val His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile
165 170 175

Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly
180 185 190

Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu
195 200 205

Arg Lys Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile
210 215 220

Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys
225 230 235 240

Trp Phe Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly
245 250 255

Pro Ile Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile
260 265 270

Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr
275 280 285

Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu
290 295 300

Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp
305 310 315 320

Leu Ser Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe
325 330 335

Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val
340 345 350

Arg Ser Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser
355 360 365

Leu Arg Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr
370 375 380

Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val
385 390 395

<210> 15
<211> 1411
<212> DNA
<213> Rattus norvegicus

<220>
 <221> CDS
 <222> (80)..(1327)

<400> 15 agaccgcagc cgcccgccct ccgctctggg atgtcggagc gatccaggca tccaggacgc tgacggagcg agccccgagg atg gga cgg cgc ccg cag ctc cgg ctc gtg aag Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys 1 5 10	60 112
 gcc ctt ctc ctt ctg ggg ctg aac cct gtg tcc acc tcc ctt cag gat Ala Leu Leu Leu Leu Gly Leu Asn Pro Val Ser Thr Ser Leu Gln Asp 15 20 25	160
 cag cgc tgt gag aac ctg tcc ctg acc agc aat gtt tct ggc ctg cag Gln Arg Cys Glu Asn Leu Ser Leu Thr Ser Asn Val Ser Gly Leu Gln 30 35 40	208
 tgc aat gca tcc gtg gac ctc att ggc acc tgc tgg ccc cgg agc cct Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro 45 50 55	256
 gcg ggc cag ttg gtg gtc cga ccc tgc cct gcc ttt ttc tac ggt gtc Ala Gly Gln Leu Val Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val 60 65 70 75	304
 cgc tac aac acg aca aac aat ggc tac cgg gag tgc ctg gcc aac ggc Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly 80 85 90	352
 agc tgg gca gcc cgt gtg aat tat tct gag tgc cag gag att ctc aac Ser Trp Ala Ala Arg Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn 95 100 105	400
 gaa gag aag aag agc aaa gta cac tac cat gtt gca gtc atc atc aac Glu Glu Lys Lys Ser Lys Val His Tyr His Val Ala Val Ile Ile Asn 110 115 120	448
 tac ctg ggt cac tgc atc tcc ctg gta gcc ctc ctg gtg gcc ttt gtc Tyr Leu Gly His Cys Ile Ser Leu Val Ala Leu Val Ala Phe Val 125 130 135	496
 ctc ttc ttg cgg ctc agg agc atc cgg tgc ctg aga aac atc atc cac Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His 140 145 150 155	544
 tgg aac ctc atc tcg gct ttc atc cta cgc aac gcc acg tgg ttt gtg Trp Asn Leu Ile Ser Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val 160 165 170	592
 gtc cag ctc acc gtg agc ccc gag gtg cac cag agc aat gtg gcc tgg Val Gln Leu Thr Val Ser Pro Glu Val His Gln Ser Asn Val Ala Trp 175 180 185	640
 tgt agg ttg gtg aca ggc ggc tac aat tac ttc cat gta acc aac ttc Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe 190 195 200	688
 ttc tag atq ttc qat qag qgc tgc tac ctg cac aca gcc att gtg ctc	736

Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu			
205	210	215	.
acg tac tcc acc gac cgt ctg cgc aag tgg atg ttc gtc tgc att ggc			784
Thr Tyr Ser Thr Asp Arg Leu Arg Lys Trp Met Phe Val Cys Ile Gly			
220	225	230	235
tgg ggt gta cct ttc ccc atc att gtg gct tgg gcc att ggg aag ctg			832
Trp Gly Val Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu			
240	245	250	
cac tac gac aat gaa aag tgc tgg ttt ggc aaa cgt cct ggg gta tac			880
His Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr			
255	260	265	
act gac tac atc tac cag ggc ccc atg atc ctg gtc ctg ctg atc aac			928
Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn			
270	275	280	
ttt atc ttt ctc ttc aac att gtc cgc atc ctc atg acc aaa ctc cgg			976
Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg			
285	290	295	
gca tcc act aca tct gag acc att cag tac agg aag gct gtg aag gcc			1024
Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala			
300	305	310	315
act ctg gtg ctc ctg ccc ctt ctg ggc atc acc tac atg ttg ttc ttc			1072
Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe			
320	325	330	
gtc aac cct gga gag gac gag gtc tcc agg gtc gtc ttc atc tac ttc			1120
Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe			
335	340	345	
aac tct ttt ctg gag tcc ttt cag ggc ttc ttt gtg tct gtg ttc tac			1168
Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr			
350	355	360	
tgt ttt ctg aac agt gag gtc cgc tcc gct atc cgg aag agg tgg cgt			1216
Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Ile Arg Lys Arg Trp Arg			
365	370	375	
cgg tgg cag gac aag cac tcc atc aga gcc cga gtg gcc cga gct atg			1264
Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met			
380	385	390	395
tcc atc ccc acc tcc ccg acc aga gtc agc ttt cac agc atc aag cag			1312
Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln			
400	405	410	
tcc aca gca gtg tga gctccaggcc acagagccagc ccccaagacc tgaggccggg			1367
Ser Thr Ala Val			
415			
gagatgatgc aagctcaactg acgagccagt ctgcagacgc aagc			1411
<210> 16			
<211> 415			
<212> PRT			

<213> Rattus norvegicus

<400> 16

Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu
1 5 10 15

Gly Leu Asn Pro Val Ser Thr Ser Leu Gln Asp Gln Arg Cys Glu Asn
20 25 30

Leu Ser Leu Thr Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser
100 105 110

Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Val
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Ala Trp Cys Arg Leu Val Thr
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp
210 215 220

Arg Leu Arg Lys Trp Met Phe Val Cys Ile Gly Trp Gly Val Pro Phe

225	230	235	240
Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu His Tyr Asp Asn Glu			
245	250	255	
Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr			
260	265	270	
Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe			
275	280	285	
Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser			
290	295	300	
Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu			
305	310	315	320
Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu			
325	330	335	
Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu			
340	345	350	
Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser			
355	360	365	
Glu Val Arg Ser Ala Ile Arg Lys Arg Trp Arg Arg Trp Gln Asp Lys			
370	375	380	
His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser			
385	390	395	400
Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val			
405	410	415	
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<213> Rattus norvegicus			
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<222> (216)..(1451)			
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cgctgcaactc tctggtggt	ccgcgtcgcg ccaggtccct cgca	ggccacg cggggcgcgc	180
actccccactc ccaacgcgcg	cggctccgga gcgca atg gac	gctg ctc Met Asp Ala Ala Leu Leu	233
	1	5	
ctc agc ctg ctg gag	gcc aac tgc agc ctg gca	ctg gcc gaa gag ctg	281
Leu Ser Leu Leu Glu	Ala Asn Cys Ser Leu Ala	Leu Ala Glu Glu Leu	
10	15	20	
ctt ttg gac ggc tgg	gga gag ccc ccg gac	ccc gaa ggt ccc tac tcc	329
Leu Leu Asp Gly Trp	Gly Glu Pro Pro Asp Pro	Glu Gly Pro Tyr Ser	
25	30	35	
tac tgc aac acg acc	ttg gac cag atc	ggg acc tgc tgg ccc cag agc	377
Tyr Cys Asn Thr Thr	Leu Asp Gln Ile Gly	Thr Cys Trp Pro Gln Ser	
40	45	50	
gcg cct gga gcc cta	gtg gag aga cca tgc	ccc gaa tac ttc aac ggc	425
Ala Pro Gly Ala Leu	Val Glu Arg Pro Cys	Pro Glu Tyr Phe Asn Gly	
55	60	65	70
atc aag tac aac acg acc	cgg aat gcc tac aga	gaa tgc ctg gag aat	473
Ile Lys Tyr Asn Thr	Arg Asn Ala Tyr Arg	Glu Cys Leu Glu Asn	
75	80	85	
ggg acc tgg gcc tca	agg atc aac tac tca	cac tgt gaa ccc att ttg	521
Gly Thr Trp Ala Ser	Arg Ile Asn Tyr Ser	His Cys Glu Pro Ile Leu	
90	95	100	
gat gac aag cag agg	aag tat gac ctg cat tac	cga atc gcc ctc atc	569
Asp Asp Lys Gln Arg	Lys Tyr Asp Leu His	Tyr Arg Ile Ala Leu Ile	
105	110	115	
atc aac tac ctg ggc	cac tgt gtt tcc	gtg gcc ctg gtg gct gct	617
Ile Asn Tyr Leu Gly	His Cys Val Ser Val	Val Ala Leu Val Ala Ala	
120	125	130	
ttc ctg ctt ttc cta	gtg ctg cgg agt atc	cgc tgc ctg cgg aat gtg	665
Phe Leu Leu Phe Leu	Val Arg Ser Ile Arg	Cys Leu Arg Asn Val	
135	140	145	150
atc cac tgg aac ctc	atc acc ttc atc	ctg aga aac atc acg tgg	713
Ile His Trp Asn Leu	Ile Thr Phe Ile	Leu Arg Asn Ile Thr Trp	
155	160	165	
ttc ctg ctg caa ctc	atc gac cac gaa	gtg cat gag ggc aat gag gtc	761
Phe Leu Leu Gln Leu	Ile Asp His Glu Val	His Glu Gly Asn Glu Val	
170	175	180	
tgg tgc cgc tgc	gtc acc acc ata	ttc aac tac ttt gtg gtc acc aac	809
Trp Cys Arg Cys Val	Thr Thr Ile Phe	Asn Tyr Phe Val Val Thr Asn	
185	190	195	
ttc ttc tgg atg	ttt gtg gaa ggc	tgc tac ctg cac acg gcc atc gtc	857
Phe Phe Trp Met Phe	Val Glu Gly Cys	Tyr Leu His Thr Ala Ile Val	
200	205	210	
atg acg tac tcc acg	gag cat ctg cgc	aag tgg ctc ctc ttc att	905
Met Thr Tyr Ser Thr	Glu His Leu Arg Lys	Trp Leu Phe Leu Phe Ile	
215	220	225	230

gga tgg tgc ata ccc tgc cct atc att gtc gcc tgg gca gtt ggc aaa Gly Trp Cys Ile Pro Cys Pro Ile Ile Val Ala Trp Ala Val Gly Lys 235 240 245	953
ctc tac tat gag aat gag cag tgc tgg ttt ggc aag gaa cct ggt gac Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Asp 250 255 260	1001
tta gtg gac tac atc tac cag ggc ccc atc atc ctc gtg ctc ctc atc Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu Ile 265 270 275	1049
aat ttt gtg ttt ctg ttc aac atc gtc agg atc ctg atg aca aaa ctg Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu 280 285 290	1097
cga gcc tcc acc aca tcc gag acc atc cag tac agg aag gca gtg aag Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys 295 300 305 310	1145
gcc acc ctg gtc ctc ccc ctg ttg ggc atc acc tac atg ctc ttc Ala Thr Leu Val Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe 315 320 325	1193
ttt gtc aat cct gga gag gac gac ctg tca cag att gtg ttc atc tac Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr 330 335 340	1241
ttc aac tct ttc ctg cag tcc ttt cag ggt ttc ttt gtg tcc gtt ttc Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe 345 350 355	1289
tac tgc ttc ttc aat gga gag gtg cgc tcc gcc ctg aga aag cgg tgg Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Leu Arg Lys Arg Trp 360 365 370	1337
cac cgt tgg cag gac cac cac gcc ctc cga gtg cct gtg gcc cgg gcc His Arg Trp Gln Asp His His Ala Leu Arg Val Pro Val Ala Arg Ala 375 380 385 390	1385
atg tcc att ccc aca tcg ccc acc agg atc agc ttc cac agc atc aag Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys 395 400 405	1433
cag aca gct gcc gtg tga tccccgtca cccatctgcc cagcactcca Gln Thr Ala Ala Val 410	1481
ccaccgaggg ggcttcctca ttcttcacag ccttccctgg gtcctccttg ctacactgac	1541
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35 40 45
Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val Glu Arg Pro Cys
50 55 60
Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr Arg Asn Ala Tyr
65 70 75 80
Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser
85 90 95
His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His
100 105 110
Tyr Arg Ile Ala Leu Ile Asn Tyr Leu Gly His Cys Val Ser Val
115 120 125
Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu Arg Ser Ile
130 135 140
Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile
145 150 155 160
Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile Asp His Glu Val
165 170 175
His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr Thr Ile Phe Asn
180 185 190
Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr
195 200 205
Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His Leu Arg Lys
210 215 220
Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro Ile Ile Val
225 230 235 240

Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe
245 250 255

Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile
260 265 270

Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg
275 280 285

Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln
290 295 300

Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly
 305 310 315 320

Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser
325 330 335

Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly
340 345 350

Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser
 355 360 365

Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His His Ala Leu Arg
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Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile
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Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val
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 Gly Ser Leu Pro Ser Ala Gln Leu Leu Leu Cys Leu Tyr Ser Leu Leu

5	10	15	20	
cca ctg ctc cag gtg gcc caa cca ggc agg cca ctc cag gac cag ccc Pro Leu Leu Gln Val Ala Gln Pro Gly Arg Pro Leu Gln Asp Gln Pro	25	30	35	151
ctg tgg aca ctt ttg gag cag tac tgc cat agg acc aca act cgg aat Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr Thr Arg Asn	40	45	50	199
ttt tca ggt ccc tac tcc tac tgc tac acg acc ttg gac cag atc ggg Phe Ser Gly Pro Tyr Ser Tyr Cys Tyr Thr Thr Leu Asp Gln Ile Gly	55	60	65	247
acc tgc tgg ccc cag agc gcg cct gga gcc cta gtg gag aga cca tgc Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val Glu Arg Pro Cys	70	75	80	295
ccc gaa tac ttc aac ggc atc aag tac aac acg acc cgg aat gcc tac Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr Arg Asn Ala Tyr	85	90	95	343
aga gaa tgc ctg gag aat ggg acc tgg gcc tca agg atc aac tac tca Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser	105	110	115	391
cac tgt gaa ccc att ttg gat gac aag cag agg aag tat gac ctg cat His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His	120	125	130	439
tac cga atc gcc ctc atc atc aac tac ctg ggc cac tgt gtt tcc gtg Tyr Arg Ile Ala Leu Ile Asn Tyr Leu Gly His Cys Val Ser Val	135	140	145	487
gtg gcc ctg gtg gct ttc ctg ctt ttc cta gtg ctg cgg agt atc Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu Arg Ser Ile	150	155	160	535
cgc tgc ctg cgg aat gtg atc cac tgg aac ctc atc acc acc ttc atc Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile	165	170	175	583
ctg aga aac atc acg tgg ttc ctg ctg caa ctc atc gac cac gaa gtg Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile Asp His Glu Val	185	190	195	631
cat gag ggc aat gag gtc tgg tgc cgc tgc gtc acc acc ata ttc aac His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr Thr Ile Phe Asn	200	205	210	679
tac ttt gtg gtc acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr	215	220	225	727
ctg cac acg gcc atc gtc atg acg tac tcc acg gag cat ctg cgc aag Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His Leu Arg Lys	230	235	240	775
tgg ctc ttc ctc ttc att gga tgg tgc ata ccc tgc cct atc att gtc Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro Ile Ile Val	245	250	255	823
				260

gca tgg gca gtt ggc aaa ctc tac tat gag aat gag cag tgc tgg ttt Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe 265 270 275	871
ggc aag gaa cct ggt gac tta gtg gac tac atc tac cag ggc ccc atc Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile 280 285 290	919
atc ctc gtg ctc ctc atc aat ttt gtg ttt ctg ttc aac atc gtc agg Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg 295 300 305	967
atc ctg atg aca aaa ctg cga gcc tcc acc aca tcc gag acc atc cag Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln 310 315 320	1015
tac agg aag gca gtg aag gcc aac ctg gtc ctc ctc ccc ctg ttg ggc Tyr Arg Lys Ala Val Lys Ala Asn Leu Val Leu Leu Pro Leu Leu Gly 325 330 335 340	1063
atc acc tac atg ctc ttc ttt gtc aat cct gga gag gac gac ctg tca Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser 345 350 355	1111
cag att gtg ttc atc tac ttc aac tct ttc ctg cag tcc ttt cag ggt Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly 360 365 370	1159
ttc ttt gtg tcc gtt ttc tac tgc ttc aat gga gag gtg cgc tcc Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser 375 380 385	1207
gcc ctg aga aag cgg tgg cac cgt tgg cag gac cac cac gcc ctc cga Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His His Ala Leu Arg 390 395 400	1255
gtg cct gtg gcc cgg gcc atg tcc att ccc aca tcg ccc acc agg atc Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile 405 410 415 420	1303
agc ttc cac agc atc aag cag aca gct gcc gtg tga tccccctgtca Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val 425 430	1349
cccatctgcc cagcaactcca ccaccgaggc ggcttcctca ttcttcacag cttccctgg	1409
gtccttccttg ctacactgac ccttgggtgc aggagaaggg ggggtggatg aactctcctg	1469
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 Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr
 35 40 45
 Thr Thr Arg Asn Phe Ser Gly Pro Tyr Ser Tyr Cys Tyr Thr Thr Leu
 50 55 60
 Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val
 65 70 75 80
 Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr
 85 90 95
 Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg
 100 105 110
 Ile Asn Tyr Ser His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys
 115 120 125
 Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Ile Asn Tyr Leu Gly His
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 Cys Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val
 145 150 155 160
 Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile
 165 170 175
 Thr Thr Phe Ile Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile
 180 185 190
 Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr
 195 200 205
 Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val
 210 215 220
 Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu
 225 230 235 240
 His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys
 245 250 255

Pro Ile Ile Val Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu
260 265 270

Gln Cys Trp Phe Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr
275 280 285

Gln Gly Pro Ile Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe
290 295 300

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser
305 310 315 320

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Asn Leu Val Leu Leu
325 330 335

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu
340 345 350

Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln
355 360 365

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly
370 375 380

Glu Val Arg Ser Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His
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His Ala Leu Arg Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser
405 410 415

Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val
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<222> (32)..(1279)

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Arg Leu Val Lys Ala Leu Leu Leu Gly Leu Asn Pro Val Ser Thr

10	15	20	
tcc ctc cag gat cag cag tgt gag agc ctg tcc ctg gcc agc aat gtc Ser Leu Gln Asp Gln Gln Cys Glu Ser Leu Ser Leu Ala Ser Asn Val 25 30 35			148
tct ggc ctg cag tgc aat gcc tcc gtg gac ctc att ggc acc tgc tgg Ser Gly Leu Gln Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp 40 45 50 55			196
ccc agg agc cct gca ggg cag ttg gtg gtt cgg ccc tgc cct gcc ttt Pro Arg Ser Pro Ala Gly Gln Leu Val Val Arg Pro Cys Pro Ala Phe 60 65 70			244
ttc tac ggt gtc cgc tac aac acc aca aac aat ggc tac cgg gaa tgc Phe Tyr Gly Val Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys 75 80 85			292
ctg gcc aac ggc agc tgg gca gcc cgt gtg aat tat tct gag tgc cag Leu Ala Asn Gly Ser Trp Ala Ala Arg Val Asn Tyr Ser Glu Cys Gln 90 95 100			340
gag att ctc aac gaa gag aag aag agc aaa gtg cac tac cac att gcc Glu Ile Leu Asn Glu Glu Lys Ser Lys Val His Tyr His Ile Ala 105 110 115			388
gtc atc atc aac tac ctg ggc cac tgc atc tcc ctg gtg gcc ctc ctg Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser Leu Val Ala Leu 120 125 130 135			436
gtg gcc ttt gtc ctc ttc ctg cgg ctc agg agc atc cgg tgc ctg agg Val Ala Phe Val Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg 140 145 150			484
aac atc atc cac tgg aac ctc atc tcg gct ttc atc ctg cgc aac gcc Asn Ile Ile His Trp Asn Leu Ile Ser Ala Phe Ile Leu Arg Asn Ala 155 160 165			532
acg tgg ttt gtg gtc cag ctc acc gtg agc ccc gag gtc cac cag agc Thr Trp Phe Val Val Gln Leu Thr Val Ser Pro Glu Val His Gln Ser 170 175 180			580
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gta acc aac ttc ttc tgg atg ttc ggt gag ggc tgc tac ctg cac aca Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr 200 205 210 215			676
gcc atc gta ctc acg tac tcc acc gac cgt ctg cgc aag tgg atg ttc Ala Ile Val Leu Thr Tyr Ser Thr Asp Arg Leu Arg Lys Trp Met Phe 220 225 230			724
gtc tgc atc ggc tgg ggt gtg cct ttc ccc atc att gtg gct tgg gcc Val Cys Ile Gly Trp Gly Val Pro Phe Pro Ile Ile Val Ala Trp Ala 235 240 245			772
att ggg aaa ctt tac tac gac aat gaa aag tgc tgg ttt ggc aaa cgt Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg 250 255 260			820

cct gta tat act gac tac atc tac cag ggc ccc atg atc ctg gtc	868
Pro Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val	
265 270 275	
ctg ctg atc aac ttt atc ttt ctc ttc aac att gtc cgc atc ctc atg	916
Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met	
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acc aaa ctc cga gca tcc acc aca tct gag act att cag tac agg aag	964
Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys	
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gct gtg aag gcc act ctg gtg ctc ttg ccc ctc ctg ggc atc acc tac	1012
Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr	
315 320 325	
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Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val Val	
330 335 340	
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Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val	
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Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Ile Arg	
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aag agg tgg cgg cga tgg cag gac aag cac tcc atc aga gcc cga gtg	1204
Lys Arg Trp Arg Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val	
380 385 390	
gcc cgc gcc atg tcc atc ccc acc tcc ccc acc aga gtc agc ttc cac	1252
Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His	
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agc atc aag cag tcc aca gca gtg tga acctcaggcc acagagcagc	1299
Ser Ile Lys Gln Ser Thr Ala Val	
410 415	
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<400> 22

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Leu Ser Leu Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val			
35	40	45	

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val			
50	55	60	

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr			
65	70	75	80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg			
85	90	95	

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser			
100	105	110	

Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys			
115	120	125	

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu			
130	135	140	

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser			
145	150	155	160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Val
 165 170 175
 Ser Pro Glu Val His Gln Ser Asn Val Ala Trp Cys Arg Leu Val Thr
 180 185 190
 Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Trp Met Phe Gly
 195 200 205
 Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp
 210 215 220
 Arg Leu Arg Lys Trp Met Phe Val Cys Ile Gly Trp Gly Val Pro Phe
 225 230 235 240
 Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu
 245 250 255
 Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr
 260 265 270
 Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe
 275 280 285
 Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser
 290 295 300
 Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu
 305 310 315 320
 Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu
 325 330 335
 Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu
 340 345 350
 Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser
 355 360 365
 Glu Val Arg Ser Ala Ile Arg Lys Arg Trp Arg Arg Trp Gln Asp Lys
 370 375 380
 His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser
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<210> 23

<211> 1374

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<222> (79)..(1374)

<400> 23

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Met Gly Thr Pro Gly Ser Leu Pro Ser Ala Gln
1 5 10

ctt ctc ctc tgc ctg ttt tcc ctg ctt cca gtg ctc cag gtg gcc caa 159
Leu Leu Leu Cys Leu Phe Ser Leu Leu Pro Val Leu Gln Val Ala Gln
15 20 25

cca ggc cag gca ccc cag gac cag ccc ctg tgg aca ctt ttg gag cag 207
Pro Gly Gln Ala Pro Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln
30 35 40

tac tgc cac agg acc aca att ggg aat ttt tca ggt ccc tac acc tac 255
Tyr Cys His Arg Thr Thr Ile Gly Asn Phe Ser Gly Pro Tyr Thr Tyr
45 50 55

tgc aac acg acc ttg gac cag atc ggg acc tgc tgg cca cag agc gca 303
Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala
60 65 70 75

ccc gga gcc cta gta gag aga ccg tgc ccc gag tac ttc aat ggc atc 351
Pro Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile
80 85 90

aag tac aac acg acc cgg aat gcc tac aga gag tgc ctg gag aac ggg 399
Lys Tyr Asn Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly
95 100 105

acc tgg gcc tca agg gtc aac tac tca cac tgc gaa ccc att ttg gat 447
Thr Trp Ala Ser Arg Val Asn Tyr Ser His Cys Glu Pro Ile Leu Asp
110 115 120

gac aag cag aga aag tat gac ctg cat tac cga atc gcc ctc att gtc 495
Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Val
125 130 135

aac tac ctg ggt cac tgt gtt tcc gtg gtg gcc ctg gtg gcc gct ttc 543
Asn Tyr Leu Gly His Cys Val Ser Val Val Ala Leu Val Ala Ala Phe
140 145 150 155

ctg ctt ttc cta gtg ctg cgg agt atc cgc tgc ctg agg aat gtg atc 591
Leu Leu Phe Leu Val Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile
160 165 170

cac tgg aac ctc atc acc acc ttc att ctg aga aac atc gcg tgg ttc 639

His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe
 175 180 185
 ctg ctg caa ctc atc gac cac gaa gtg cac gag ggc aat gag gtc tgg 687
 Leu Leu Gln Leu Ile Asp His Glu Val His Glu Gly Asn Glu Val Trp
 190 195 200
 tgc cgc tgc atc acc acc atc ttc aac tat ttt gtg gtc acc aac ttc 735
 Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe
 205 210 215
 ttc tgg atg ttt gtg gag ggc tgc tac ctg cac acg gcc att gtc atg 783
 Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met
 220 225 230 235
 acg tac tcc aca gag cac ctg cgc aag tgg ctt ttc ctc ttc att gga 831
 Thr Tyr Ser Thr Glu His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly
 240 245 250
 tgg tgc att ccc tgc cct atc atc atc gcc tgg gca gtt ggc aaa ctc 879
 Trp Cys Ile Pro Cys Pro Ile Ile Ala Trp Ala Val Gly Lys Leu
 255 260 265
 tac tat gag aat gag cag tgc tgg ttt ggc aag gaa gct ggt gat ttg 927
 Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu
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 gtg gac tac atc tac cag ggc ccc gtc atg ctt gtg ctg ttg atc aat 975
 Val Asp Tyr Ile Tyr Gln Gly Pro Val Met Leu Val Leu Leu Ile Asn
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 Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg
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 Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala
 320 325 330
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 Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe
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 Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe
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 aac tct ttc ctg cag tcc cag ggt ttc ttt gtg tcc gtt ttc tac 1215
 Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr
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 Cys Phe Phe Asn Gly Glu Val Arg Ala Ala Leu Arg Lys Arg Trp His
 380 385 390 395
 cgc tgg cag gac cac cac gcc ctc cgg gtg cct gtg gcc cggttggcac 1311
 Arg Trp Gln Asp His His Ala Leu Arg Val Pro Val Ala Arg Ala Met
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1374

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Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr
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Thr Ile Gly Asn Phe Ser Gly Pro Tyr Thr Tyr Cys Asn Thr Thr Leu
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Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val
 65 70 80
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Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr
 85 90 95
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Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg
 100 105 110
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Val Asn Tyr Ser His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys
 115 120 125
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Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Val Asn Tyr Leu Gly His
 130 135 140
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Cys Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val
 145 150 155 160
 145

Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile
 165 170 175
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Thr Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe Leu Leu Gln Leu Ile
 180 185 190
 180

Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Ile Thr
 195 200 205
 Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val
 210 215 220
 Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu
 225 230 235 240
 His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys
 245 250 255
 Pro Ile Ile Ile Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu
 260 265 270
 Gln Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu Val Asp Tyr Ile Tyr
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 Gln Gly Pro Val Met Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe
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 Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser
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 Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu
 325 330 335
 Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu
 340 345 350
 Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln
 355 360 365
 Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly
 370 375 380
 Glu Val Arg Ala Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His
 385 390 395 400
 His Ala Leu Arg Val Pro Val Ala Arg Met Ser Ile Pro Thr Ser
 405 410 415
 Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val
 420 425 430

ctc atc gac cac gaa gtg cac gag ggc aat gag gtc tgg tgc cgc tgc Leu Ile Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys 190 195 200 205	746
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Val	
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Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr

35

40

45

Thr Ile Gly Asn Phe Ser Gly Pro Tyr Thr Tyr Cys Asn Thr Thr Leu
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 Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr
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 Asp Leu His Tyr Arg Ile Ala Leu Ile Val Asn Tyr Leu Gly His Cys
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 Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu
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 Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr
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 Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe Leu Leu Gln Leu Ile Asp
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 His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Ile Thr Thr
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 Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu
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 Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His
 225 230 235 240
 Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro
 245 250 255
 Ile Ile Ile Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln
 260 265 270
 Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu Val Asp Tyr Ile Tyr Gln
 275 280 285

Gly Pro Val Met Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn
 290 295 300
 Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu
 305 310 315 320
 Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro
 325 330 335
 Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp
 340 345 350
 Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser
 355 360 365
 Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu
 370 375 380
 Val Arg Ala Ala Leu Arg Asn Gly Trp His Arg Trp Gln Asp His His
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 405 410 415
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ggg ctg aac tcc atc tcc gcc tcc ctc cag gac cag cat tgc gag agc						96
Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser						
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ttg tcc ctg gcc agc aac gtc tct gga ctg cag tgc aac gct tcc gtg						144
Leu Ser Leu Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val						
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Asp Leu Asn Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val			
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Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr			
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agc aat ggc tac cgg gtg tgc ctg gcc aat ggc acg tgg gca gcc cgc			288
Ser Asn Gly Tyr Arg Val Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg			
85	90	95	
gtg aat cac tcc gag tgc caa gag atc ctc agc gaa gga gag aag agc			336
Val Asn His Ser Glu Cys Gln Glu Ile Leu Ser Glu Gly Glu Lys Ser			
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aag gcg cac tac cac atc gcc gtc atc atc aac tac ctg ggc cac tgc			384
Lys Ala His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys			
115	120	125	
atc tcc ctg gcg gcc ctc ctg gtg gcc ttt gtc ctc ttt ctg cgg ctc			432
Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu			
130	135	140	
agg agc atc cgg tgc gtg aga aac atc atc cac tgg aac ctc atc tca			480
Arg Ser Ile Arg Cys Val Arg Asn Ile Ile His Trp Asn Leu Ile Ser			
145	150	155	160
gcc ttc atc ctg cgc aat gcc acg tgg ttc gtg gtc cag ctc acc atg			528
Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met			
165	170	175	
agc ccc gaa gtc cat cag agc aac gtg ggc tgg tgc agg ctg gtg aca			576
Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr			
180	185	190	
gcc gcc tac aac tac ttc cac gtg acc aac ttc ttc tgg atg ttc ggc			624
Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly			
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gag ggc tgc tac ctg cac acg gct gtc gtg ctc aca tac tcc acg gac			672
Glu Gly Cys Tyr Leu His Thr Ala Val Val Leu Thr Tyr Ser Thr Asp			
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cgg ctg cgc aaa tgg atg ttt atc tgc atc ggc tgg ggt gtg ccc ttc			720
Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe			
225	230	235	240
ccc atc att gtg gcc tgg gcc att gga aag ttg tac tac gac aat gag			768
Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu			
245	250	255	
aag tgc tgg ttt ggc aaa agg cct ggg gtg tac act gat tac atc tac			816
Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr			
260	265	270	
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Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe			
275	280	285	
aac atc gtt cgc atc ctc atg acc aaa ctc cgg gca tcc acc acc tct			912
Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser			

290	295	300	
gag acc att cag tac agg aag gct gtg aag gcc act ctg gtg ctg ctc Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu	305	310	960
		315	320
ccc ctc ctg ggc atc acg tac atg ctg ttc gtg aac ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu	325	330	1008
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gac gag gtc tcc cg ^g gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu	340	345	1056
			350
tct ttc cag ggc ttc ttc gtg tct gtg ttc tac tgc ttc ctc aac agc Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser	355	360	1104
			365
gag gtc cgc tct gcc atc cg ^g aag agg tgg cac cgc tgg cag gac aag Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys	370	375	1152
			380
cac tca atc cgt gcc cgt gtg gct cgc gcc atg tcc atc ccc acc tcc His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser	385	390	1200
			395
ccc acc cgt gtc agc ttt cac agc atc aag cag tcc aca gca gtg tga Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val	405	410	1248
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 Asp Leu Asn Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val			
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 Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr			
65 70 75 80			
 Ser Asn Gly Tyr Arg Val Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg			
85 90 95			

Val Asn His Ser Glu Cys Gln Glu Ile Leu Ser Glu Gly Glu Lys Ser
 100 105 110
 Lys Ala His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys
 115 120 125
 Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu
 130 135 140
 Arg Ser Ile Arg Cys Val Arg Asn Ile Ile His Trp Asn Leu Ile Ser
 145 150 155 160
 Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met
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 Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr
 180 185 190
 Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly
 195 200 205
 Glu Gly Cys Tyr Leu His Thr Ala Val Val Leu Thr Tyr Ser Thr Asp
 210 215 220
 Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe
 225 230 235 240
 Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu
 245 250 255
 Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr
 260 265 270
 Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe
 275 280 285
 Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser
 290 295 300
 Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu
 305 310 315 320
 Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu
 325 330 335

Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu
340 345 350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser
355 360 365

Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys
370 375 380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser
385 390 395 400

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Ala Gly Ile Ser Phe Ala Leu Thr Ser Leu Gln Asp Gln Cys Glu Thr
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ctg cag cac aat tct aac ttc aca ggt ctt gcc tgc aac gct tcc att 144
Leu Gln His Asn Ser Asn Phe Thr Gly Leu Ala Cys Asn Ala Ser Ile
35 40 45

gat atg atc ggc act tgc tgg ccc agt act gca gct gga cag atg gtg 192
Asp Met Ile Gly Thr Cys Trp Pro Ser Thr Ala Ala Gly Gln Met Val
50 55 60

gcc aga ccc tgc ccc gag tac ttc cat ggg gtg caa tac aac aca aca 240
Ala Arg Pro Cys Pro Glu Tyr Phe His Gly Val Gln Tyr Asn Thr Thr
65 70 75 80

ggg aat gtg tac aga gaa tgt cac ctg aac ggc agc tgg gct ggg aga 288
Gly Asn Val Tyr Arg Glu Cys His Leu Asn Gly Ser Trp Ala Gly Arg
85 90 95

gga gac tac gct caa tgc cag gag att cta aag caa gag aag aaa acc 336
Gly Asp Tyr Ala Gln Cys Gln Glu Ile Leu Lys Gln Glu Lys Lys Thr
100 105 110

aaa gtt cat tat cac ata gcc atc gtg att aac ttc ctg ggt cac tcc 384
Lys Val His Tyr His Ile Ala Ile Val Ile Asn Phe Leu Gly His Ser
115 120 125

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gag acc ata cag tac agg aaa gct gtt aaa gcc acc ctg gtg ctc ctg Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
cct ttg ctt ggg atc acc tac atg ctt ttc ttt gtg acg ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Thr Pro Gly Glu 325 330 335	1008
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His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser			
385	390	395	400
ccc act cgg att agt ttc cac agc atc aag caa tct tct gcc att tga		1248	
Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Ser Ser Ala Ile			
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<213> Xenopus laevis			
<400> 30			
Met Leu Leu Ala Lys Thr Pro Cys Leu Leu Leu Val Gln Val Ile Ala			
1	5	10	15
Ala Gly Ile Ser Phe Ala Leu Thr Ser Leu Gln Asp Gln Cys Glu Thr			
20	25	30	
Leu Gln His Asn Ser Asn Phe Thr Gly Leu Ala Cys Asn Ala Ser Ile			
35	40	45	
Asp Met Ile Gly Thr Cys Trp Pro Ser Thr Ala Ala Gly Gln Met Val			
50	55	60	
Ala Arg Pro Cys Pro Glu Tyr Phe His Gly Val Gln Tyr Asn Thr Thr			
65	70	75	80
Gly Asn Val Tyr Arg Glu Cys His Leu Asn Gly Ser Trp Ala Gly Arg			
85	90	95	
Gly Asp Tyr Ala Gln Cys Gln Glu Ile Leu Lys Gln Glu Lys Lys Thr			
100	105	110	
Lys Val His Tyr His Ile Ala Ile Val Ile Asn Phe Leu Gly His Ser			
115	120	125	
Ile Ser Leu Cys Ala Leu Leu Val Ala Phe Ile Leu Phe Leu Arg Leu			
130	135	140	
Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr			
145	150	155	160
Ala Phe Ile Leu Arg Asn Val Thr Trp Phe Val Met Gln Leu Thr Leu			

165

170

175

Ser His Glu Ala His Asp Ser Asn Val Val Trp Cys Arg Leu Val Thr
180 185 190

Ile Ala His Asn Tyr Phe Tyr Val Thr Asn Phe Phe Trp Met Phe Gly
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp
210 215 220

Lys Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe
225 230 235 240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu
245 250 255

Lys Cys Trp Phe Gly Lys Ala Gly Val Tyr Thr Asp Phe Ile Tyr
260 265 270

Gln Gly Pro Val Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe
275 280 285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser
290 295 300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu
305 310 315 320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Thr Pro Gly Glu
325 330 335

Asp Glu Ile Ser Arg Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln
340 345 350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser
355 360 365

Glu Val Arg Ser Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp Lys
370 375 380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser
385 390 395 400

Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Ser Ser Ala Ile
405 410 415

<210> 31
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<220>
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tgc agc ctt ttg gat gct ttt cag gac agt ttt ttg cac tct gag tcc Cys Ser Leu Leu Asp Ala Phe Gln Asp Ser Phe Leu His Ser Glu Ser . 20 25 30	96
tcc tct ttc ttt ggc ttt gaa ggt ccc tat tgt agc gct acc att gac Ser Ser Phe Phe Gly Phe Glu Gly Pro Tyr Cys Ser Ala Thr Ile Asp 35 40 45	144
cag att ggc acg tgc tgg ccc agg agc cta gcc ggg gaa ctt gtg gaa Gln Ile Gly Thr Cys Trp Pro Arg Ser Leu Ala Gly Glu Leu Val Glu 50 55 60	192
aga ccc tgc ccg gat tcc ttc aat ggg atc aga tac aac aca act aga Arg Pro Cys Pro Asp Ser Phe Asn Gly Ile Arg Tyr Asn Thr Thr Arg 65 70 75 80	240
aac gtc tac aga gaa tgc ttt gag aat gga acc tgg gcg tcc tgg atg Asn Val Tyr Arg Glu Cys Phe Glu Asn Gly Thr Trp Ala Ser Trp Met 85 90 95	288
aat tac tct cag tgt gtg ccc att ctg gat aat aag agg aag tac gcc Asn Tyr Ser Gln Cys Val Pro Ile Leu Asp Asn Lys Arg Lys Tyr Ala 100 105 110	336
ctt cat tac aag att gct ctc atc ata aac tac ctg ggg cac tgc atc Leu His Tyr Lys Ile Ala Leu Ile Asn Tyr Leu Gly His Cys Ile 115 120 125	384
tcc atc ttg gct ctc gtt atc gct ttc ttg ctc ttt ctg tgt ttg agg Ser Ile Leu Ala Leu Val Ile Ala Phe Leu Leu Phe Leu Cys Leu Arg 130 135 140	432
agt ata aga tgc ctt cgg aac att atc cac tgg aat tta atc act act Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr Thr 145 150 155 160	480
ttc atc ctg agg aac atc atg tgg ttc ctg ctg cag atg att gac cat Phe Ile Leu Arg Asn Ile Met Trp Phe Leu Leu Gln Met Ile Asp His 165 170 175	528
aac att cat gaa agc aac gag gtc tgg tgt cgg tgt atc aca act att Asn Ile His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile 180 185 190	576
tac aat tac ttt gtg gtg acc aac ttc ttc tgg atg ttt gtg gaa gga	624

Tyr Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly			
195	200	205	
tgt tac cta cac aca gct ata gtg atg aca tac tca acg gac aaa ctt		672	
Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Asp Lys Leu			
210	215	220	
agg aaa tgg gtg ttc ctc ttc ata gga tgg tgt att cca tct ccg atc		720	
Arg Lys Trp Val Phe Leu Phe Ile Gly Trp Cys Ile Pro Ser Pro Ile			
225	230	235	240
att gtc acc tgg gcc atc tgc aag ctt ttc tat gaa aat gaa cag tgt		768	
Ile Val Thr Trp Ala Ile Cys Lys Leu Phe Tyr Glu Asn Glu Gln Cys			
245	250	255	255
tgg att ggg aag gag ccc ggg aaa tac att gat tac att tac cag ggc		816	
Trp Ile Gly Lys Glu Pro Gly Lys Tyr Ile Asp Tyr Ile Tyr Gln Gly			
260	265	270	270
cgg gtg att ctc gta ctt ctg ata aat ttt gtg ttc tta ttc aac att		864	
Arg Val Ile Leu Val Leu Ile Asn Phe Val Phe Leu Phe Asn Ile			
275	280	285	285
gta aga att ttg atg aca aaa ctg aga gct tca act aca tct gaa acg		912	
Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Ser Glu Thr			
290	295	300	300
ata cag tac agg aag gct gtg aag gca acg tta gtc ctt ctc cct ctt		960	
Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu			
305	310	315	320
ctg gga atc acc tac atg ctc ttc gtc aac cct gga gag gat gac		1008	
Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp			
325	330	335	335
gtt tct cag atc gtt ttt att tac ttc aac tcg ttt ctt cag tcc ttt		1056	
Val Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe			
340	345	350	350
cag ggt ttc ttt gtg tca gta ttt tac tgc ttc ctt aat ggg gag gtc		1104	
Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Gly Glu Val			
355	360	365	365
cgg tcg gct gca agg aaa aga tgg cac cgc tgg caa gac cac cat tct		1152	
Arg Ser Ala Ala Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser			
370	375	380	380
ctg cgg gtt cgg gta gcc aga gcc atg tcc ata cca aca tca ccg acc		1200	
Leu Arg Val Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr			
385	390	395	400
aga atc agc ttt cac agt ata aag caa acg gca gcc gtc tga		1242	
Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val			
405	410		

<210> 32
 <211> 413
 <212> PRT
 <213> Xenopus laevis

<400> 32

Met Asp Ser Thr Ile Phe Glu Ile Ile Asp Glu Phe Asp Ala Asn
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Cys Ser Leu Leu Asp Ala Phe Gln Asp Ser Phe Leu His Ser Glu Ser
20 25 30

Ser Ser Phe Phe Gly Phe Glu Gly Pro Tyr Cys Ser Ala Thr Ile Asp
35 40 45

Gln Ile Gly Thr Cys Trp Pro Arg Ser Leu Ala Gly Glu Leu Val Glu
50 55 60

Arg Pro Cys Pro Asp Ser Phe Asn Gly Ile Arg Tyr Asn Thr Thr Arg
65 70 75 80

Asn Val Tyr Arg Glu Cys Phe Glu Asn Gly Thr Trp Ala Ser Trp Met
85 90 95

Asn Tyr Ser Gln Cys Val Pro Ile Leu Asp Asn Lys Arg Lys Tyr Ala
100 105 110

Leu His Tyr Lys Ile Ala Leu Ile Asn Tyr Leu Gly His Cys Ile
115 120 125

Ser Ile Leu Ala Leu Val Ile Ala Phe Leu Leu Phe Leu Cys Leu Arg
130 135 140

Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr Thr
145 150 155 160

Phe Ile Leu Arg Asn Ile Met Trp Phe Leu Leu Gln Met Ile Asp His
165 170 175

Asn Ile His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile
180 185 190

Tyr Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly
195 200 205

Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Asp Lys Leu
210 215 220

Arg Lys Trp Val Phe Leu Phe Ile Gly Trp Cys Ile Pro Ser Pro Ile
225 230 235 240

Ile	Val	Thr	Trp	Ala	Ile	Cys	Lys	Leu	Phe	Tyr	Glu	Asn	Glu	Gln	Cys
245															255
Trp	Ile	Gly	Lys	Glu	Pro	Gly	Lys	Tyr	Ile	Asp	Tyr	Ile	Tyr	Gln	Gly
260															270
Arg	Val	Ile	Leu	Val	Leu	Leu	Ile	Asn	Phe	Val	Phe	Leu	Phe	Asn	Ile
275															285
Val	Arg	Ile	Leu	Met	Thr	Lys	Leu	Arg	Ala	Ser	Thr	Thr	Ser	Glu	Thr
290															300
Ile	Gln	Tyr	Arg	Lys	Ala	Val	Lys	Ala	Thr	Leu	Val	Leu	Leu	Pro	Leu
305															320
Leu	Gly	Ile	Thr	Tyr	Met	Leu	Phe	Phe	Val	Asn	Pro	Gly	Glu	Asp	Asp
325															335
Val	Ser	Gln	Ile	Val	Phe	Ile	Tyr	Phe	Asn	Ser	Phe	Leu	Gln	Ser	Phe
340															350
Gln	Gly	Phe	Phe	Val	Ser	Val	Phe	Tyr	Cys	Phe	Leu	Asn	Gly	Glu	Val
355															365
Arg	Ser	Ala	Ala	Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	His	His	Ser
370															380
Leu	Arg	Val	Arg	Val	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser	Pro	Thr
385															400
Arg	Ile	Ser	Phe	His	Ser	Ile	Lys	Gln	Thr	Ala	Ala	Val			
405															410
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<212>	DNA														
<213>	Ameiurus nebulosus														
<220>															
<221>	CDS														
<222>	(1)..(1338)														
<400>	33														
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Met															
1															48
5															10
															15
ttc	tct	ggg	gcc	aca	gct	gag	ctc	aca	tgc	gac	act	ctg	ctc	ctg	ctc
Phe	Ser	Gly	Ala	Thr	Ala	Glu	Leu	Thr	Cys	Asp	Thr	Leu	Leu	Leu	96

20	25	30	
tcc acc aac cgc aca gct cgc aca tta ata cta tgg aac cag acg tcg Ser Thr Asn Arg Thr Ala Arg Thr Leu Ile Leu Trp Asn Gln Thr Ser	35	40	144
35	40	45	
agc tca agt aat gcc aca ggt aca agc tca agt aat gcc aca ggt aca Ser Ser Asn Ala Thr Gly Thr Ser Ser Asn Ala Thr Gly Thr	50	55	192
50	55	60	
agc tca agc aat gcc aca ggt ttg ttc tgt aat ata tct ata gat ggc Ser Ser Ser Asn Ala Thr Gly Leu Phe Cys Asn Ile Ser Ile Asp Gly	65	70	240
65	70	75	
atc ggg acg tgt tgg ccc agg agc aac gca ggg gaa ata gta tca cgt Ile Gly Thr Cys Trp Pro Arg Ser Asn Ala Gly Glu Ile Val Ser Arg	85	90	288
85	90	95	
cca tgt cct gag acc ttc ttg ggt gtc cgc tac aac acc acc aat aac Pro Cys Pro Glu Thr Phe Leu Gly Val Arg Tyr Asn Thr Thr Asn Asn	100	105	336
100	105	110	
gtc tac aga gaa tgc ctc gcc aat gga acg tgg gcg aag aag ggg aat Val Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Lys Lys Gly Asn	115	120	384
115	120	125	
tat tct cag tgt cag gaa att ctc aat gaa gag aaa aag agc aag ctg Tyr Ser Gln Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Leu	130	135	432
130	135	140	
cac tac cac att gca gtg att ata aac tac ctg ggc cac tgc atc tct His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser	145	150	480
145	150	155	
ctc gga gcc ctg ctg gtt gcc ttc att ctc ttt atg agg ctg agg atg Leu Gly Ala Leu Leu Val Ala Phe Ile Leu Phe Met Arg Leu Arg Met	165	170	528
165	170	175	
atc cgc tgc ctc agg aac atc att cac tgg aat ctg att atg gct ttc Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Met Ala Phe	180	185	576
180	185	190	
atc ctg cgc aat gct aca tgg ttc gta gtg cag ctg acc atg aac cca Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro	195	200	624
195	200	205	
gag gtg cat gag agc aat gtg atc tgg tgc agg ctg gtt aca gca gcg Glu Val His Glu Ser Asn Val Ile Trp Cys Arg Leu Val Thr Ala Ala	210	215	672
210	215	220	
tat aat tac ttt cat gtg acc aac ttc ttc tgg atg ttt ggt gag ggc Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly	225	230	720
225	230	235	
235	240		
tgc tat ctg cac acg gcc atc gtg ctg act tac tcc act gat aag ctc Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu	245	250	768
245	250	255	
agg aag tgg ctg ttc atc tgt atc ggc tgg tgt att ccc ttt cct atc Arg Lys Trp Leu Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile	260	265	816
260	265	270	

atc gtt gca tgg gcc att ggt aag ctg tat tac gac aat gaa aag tgc Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys 275 280 285	864
tgg ttt gga aaa cga gct ggt gtt tat act gac tac atc tat cag ggc Trp Phe Gly Lys Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly 290 295 300	912
ccc atg atc ctt gtt ctt ctg atc aac ttt att ttc ctt ttc aac atc Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile 305 310 315 320	960
gtg agg atc ctg atg aca aag cta aga gcc tcc acc aca tca gag acg Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr 325 330 335	1008
att cag tac agg aaa gct gtg aag gcc act ctg gtc ctg ctg cct ctc Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu 340 345 350	1056
ctc ggg atc acc tac atg ctt ttc ttt gtt aac cct gga gag gac gag Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu 355 360 365	1104
atc tcc caa atc gtc ttc atc tat ttc aat tct ttc ctc gag tcc ttt Ile Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe 370 375 380	1152
caa ggt ttc ttc gtg tct gtg ttt tat tgc ttc ctg aac agt gaa gtc Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val 385 390 395 400	1200
cgt tcg gct gtt cg ^g aag cgc tgg cac cgc cg ^g cag gac aag cac tca Arg Ser Ala Val Arg Lys Arg Trp His Arg Arg Gln Asp Lys His Ser 405 410 415	1248
atc cg ^g gca cg ^g gtg gca cg ^g gcc atg tcc att ccc acc tcg cct act Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr 420 425 430	1296
cg ^g gtc agc ttc cac agc atc aag caa tcc tca gca gtg tga Arg Val Ser Phe His Ser Ile Lys Gln Ser Ser Ala Val 435 440 445	1338
<210> 34	
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<212> PRT	
<213> Ameiurus nebulosus	
<400> 34	
Met His Phe Leu Leu Arg Pro Gln Val Phe Ser Ile Trp Ile Thr Leu 1 5 10 15	
Phe Ser Gly Ala Thr Ala Glu Leu Thr Cys Asp Thr Leu Leu Leu 20 25 30	

Ser Thr Asn Arg Thr Ala Arg Thr Leu Ile Leu Trp Asn Gln Thr Ser
35 40 45

Ser Ser Ser Asn Ala Thr Gly Thr Ser Ser Asn Ala Thr Gly Thr
50 55 60

Ser Ser Ser Asn Ala Thr Gly Leu Phe Cys Asn Ile Ser Ile Asp Gly
65 70 75 80

Ile Gly Thr Cys Trp Pro Arg Ser Asn Ala Gly Glu Ile Val Ser Arg
85 90 95

Pro Cys Pro Glu Thr Phe Leu Gly Val Arg Tyr Asn Thr Thr Asn Asn
100 105 110

Val Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Lys Lys Gly Asn
115 120 125

Tyr Ser Gln Cys Gln Glu Ile Leu Asn Glu Glu Lys Ser Lys Leu
130 135 140

His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser
145 150 155 160

Leu Gly Ala Leu Leu Val Ala Phe Ile Leu Phe Met Arg Leu Arg Met
165 170 175

Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Met Ala Phe
180 185 190

Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro
195 200 205

Glu Val His Glu Ser Asn Val Ile Trp Cys Arg Leu Val Thr Ala Ala
210 215 220

Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly
225 230 235 240

Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu
245 250 255

Arg Lys Trp Leu Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile
260 265 270

Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asn Glu Lys Cys

275

280

285

Trp Phe Gly Lys Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly
290 295 300

Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile
305 310 315 320

Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr
325 330 335

Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu
340 345 350

Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu
355 360 365

Ile Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe
370 375 380

Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val
385 390 395 400

Arg Ser Ala Val Arg Lys Arg Trp His Arg Arg Gln Asp Lys His Ser
405 410 415

Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr
420 425 430

Arg Val Ser Phe His Ser Ile Lys Gln Ser Ser Ala Val
435 440 445

<210> 35

<211> 1442

<212> DNA

<213> Ameiurus nebulosus

<220>

<221> CDS

<222> (102)..(1388)

<400> 35

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aactgattaa taatcctgcc agctgatcaa ctggaaagg a atg tgg atc tgc cta 116
Met Trp Ile Cys Leu
1 5

atg cta aag gtc ttg tct atc ttg tct ttt gtg gtt gtg aag gtg tca 164
Met Leu Lys Val Leu Ser Ile Leu Ser Phe Val Val Val Lys Val Ser

10	15	20	
gct gat ctt acc tgc gat gcc gtg cta atg ctg gct tct gga aac cac Ala Asp Leu Thr Cys Asp Ala Val Leu Met Leu Ala Ser Gly Asn His 25	30	35	212
aca ttg tac cat ctg gat gcc gct aat cac tct gac act aat aac tcg Thr Leu Tyr His Leu Asp Ala Ala Asn His Ser Asp Thr Asn Asn Ser 40	45	50	260
ggt gtg ttt tgc agc aca gtt atc gat ggc atc ggc acc tgc tgg ccg Gly Val Phe Cys Ser Thr Val Ile Asp Gly Ile Gly Thr Cys Trp Pro 55	60	65	308
cgc agc gtg gcc ggg gag atg gtg tcg cgt ccg tgt ccg gaa ttc ctc Arg Ser Val Ala Gly Glu Met Val Ser Arg Pro Cys Pro Glu Phe Leu 70	75	80	356
tac gga gtc cga tac aac acc acc aat aaa atc ttc cgg aaa tgt ctt Tyr Gly Val Arg Tyr Asn Thr Asn Lys Ile Phe Arg Lys Cys Leu 90	95	100	404
gct aat gga acc tgg gcg ccc aaa agc aac tac tct cag tgc aag gct Ala Asn Gly Thr Trp Ala Pro Lys Ser Asn Tyr Ser Gln Cys Lys Ala 105	110	115	452
att ctc aat gta cag agg aag agc aag ctg cat tat cga atc gct gtc Ile Leu Asn Val Gln Arg Lys Ser Lys Leu His Tyr Arg Ile Ala Val 120	125	130	500
atc att aac tac ctg ggt cac tgc ttg tca ctg ttc act ctt ctt atc Ile Ile Asn Tyr Leu Gly His Cys Leu Ser Leu Phe Thr Leu Leu Ile 135	140	145	548
gcc ttc ata atc ttc tta cga ctc agg agt att cgc tgt tta agg aac Ala Phe Ile Ile Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn 150	155	160	596
atc atc cac tgg aat cta acc tct gcc ttc atc ctg aga aat gcg acg Ile Ile His Trp Asn Leu Thr Ser Ala Phe Ile Leu Arg Asn Ala Thr 170	175	180	644
tgg ttc atc gtt cag ctc acc atg aac cct gat gta cac gag agc aac Trp Phe Ile Val Gln Leu Thr Met Asn Pro Asp Val His Glu Ser Asn 185	190	195	692
gtg cca tgg tgc cgt tta gtg acg acg gca tat aac tac ttc cac atg Val Pro Trp Cys Arg Leu Val Thr Thr Ala Tyr Asn Tyr Phe His Met 200	205	210	740
gcc aat ttt ttc tgg atg ttc ggc gaa ggc tgt tat ctt cac aca gcc Ala Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala 215	220	225	788
atc gtg ctc acc tac tcc act gac aaa ctc aag aaa tgg atg ttc atc Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Lys Lys Trp Met Phe Ile 230	235	240	836
tgc atc gga tgg tgt att cct tcg cct att atc gtc gcc tgg gcc atc Cys Ile Gly Trp Cys Ile Pro Ser Pro Ile Ile Val Ala Trp Ala Ile 250	255	260	884

gga aag ctg tac tac gac aac gag aag tgt tgg ttt ggg aag aga gca Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Ala 265 270 275	932
ggc ata tac aca gac tac atc tac cag ggc ccc atg atc ctg gta ctt Gly Ile Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu 280 285 290	980
atg atc aat ttc gtg ttc ctc ttc aac ata gta agg atc ctc atg acc Met Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr 295 300 305	1028
aaa ctc cg ^g gcc tcc acc aca tcc gaa acc atc cag tac agg aag gcg Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala 310 315 320 325	1076
gtg aag gcc acg ctc gtg tta ctg cct ctg ctc ggg atc acg tac atg Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met 330 335 340	1124
ctg ttc ttc gta aac cca gga gag gac gaa atc tcg cag atc gtc ttc Leu Phe Val Asn Pro Gly Glu Asp Glu Ile Ser Gln Ile Val Phe 345 350 355	1172
atc tac ttc aat tcc ttt ctg cag tcc ttt cag ggc ttc ttt gtg tcc Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser 360 365 370	1220
gtg ttc tac tgt ttt cta aac agc gag gtc cgc tcg gct gtt cgg aag Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Val Arg Lys 375 380 385	1268
cac tgg cac cgc tgg cag gac cac cat tcc atc cgc gca cga gtt gcg His Trp His Arg Trp Gln Asp His His Ser Ile Arg Ala Arg Val Ala 390 395 400 405	1316
aga gcg atg tcc att ccc acc tca cct tcg cgc ctc agc ttc cac agc Arg Ala Met Ser Ile Pro Thr Ser Pro Ser Arg Leu Ser Phe His Ser 410 415 420	1364
atc aaa cag tcc acc tct gtc tga tacaggacg cataacattg aaaaagaaaag Ile Lys Gln Ser Thr Ser Val 425	1418
aggcaggcac tctatcagtg agga	1442

<210> 36
<211> 428
<212> PRT
<213> Ameiurus nebulosus

<400> 36

Met Trp Ile Cys Leu Met Leu Lys Val Leu Ser Ile Leu Ser Phe Val
1 5 10 15

Val Val Lys Val Ser Ala Asp Leu Thr Cys Asp Ala Val Leu Met Leu
20 25 30

Ala Ser Gly Asn His Thr Leu Tyr His Leu Asp Ala Ala Asn His Ser
 35 40 45
 Asp Thr Asn Asn Ser Gly Val Phe Cys Ser Thr Val Ile Asp Gly Ile
 50 55 60
 Gly Thr Cys Trp Pro Arg Ser Val Ala Gly Glu Met Val Ser Arg Pro
 65 70 75 80
 Cys Pro Glu Phe Leu Tyr Gly Val Arg Tyr Asn Thr Thr Asn Lys Ile
 85 90 95
 Phe Arg Lys Cys Leu Ala Asn Gly Thr Trp Ala Pro Lys Ser Asn Tyr
 100 105 110
 Ser Gln Cys Lys Ala Ile Leu Asn Val Gln Arg Lys Ser Lys Leu His
 115 120 125
 Tyr Arg Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Leu Ser Leu
 130 135 140
 Phe Thr Leu Leu Ile Ala Phe Ile Ile Phe Leu Arg Leu Arg Ser Ile
 145 150 155 160
 Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Thr Ser Ala Phe Ile
 165 170 175
 Leu Arg Asn Ala Thr Trp Phe Ile Val Gln Leu Thr Met Asn Pro Asp
 180 185 190
 Val His Glu Ser Asn Val Pro Trp Cys Arg Leu Val Thr Thr Ala Tyr
 195 200 205
 Asn Tyr Phe His Met Ala Asn Phe Phe Trp Met Phe Gly Glu Gly Cys
 210 215 220
 Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Lys
 225 230 235 240
 Lys Trp Met Phe Ile Cys Ile Gly Trp Cys Ile Pro Ser Pro Ile Ile
 245 250 255
 Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp
 260 265 270

Phe Gly Lys Arg Ala Gly Ile Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro
 275 280 285

 Met Ile Leu Val Leu Met Ile Asn Phe Val Phe Leu Phe Asn Ile Val
 290 295 300

 Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile
 305 310 315 320

 Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu
 325 330 335

 Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Ile
 340 345 350

 Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln
 355 360 365

 Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg
 370 375 380

 Ser Ala Val Arg Lys His Trp His Arg Trp Gln Asp His His Ser Ile
 385 390 395 400

 Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Ser Arg
 405 410 415

 Leu Ser Phe His Ser Ile Lys Gln Ser Thr Ser Val
 420 425

 <210> 37
 <211> 1218
 <212> DNA
 <213> Ameiurus nebulosus

 <220>
 <221> CDS
 <222> (1)..(1218)

 <400> 37
 atg gag gtc agt ctg ctg gag ctg ctc agt gtg gag gtg aac tgc agc 48
 Met Glu Val Ser Leu Leu Glu Leu Ser Val Glu Val Asn Cys Ser
 1 5 10 15

 ctc gcg gac gcg ttt gga gac cct gcg tac gga aac gca tca gac gct 96
 Leu Ala Asp Ala Phe Gly Asp Pro Ala Tyr Gly Asn Ala Ser Asp Ala
 20 25 30

 ctg tac tgc aac gcc acg gcg gat gag atc ggc acg tgc tgg ccg agg 144
 Leu Tyr Cys Asn Ala Thr Ala Asp Glu Ile Gly Thr Cys Trp Pro Arg

35	40	45	
agc ggc gcg ggg aga gtg gtg gcg cgg ccg tgc ccc gac ttc atc aac Ser Gly Ala Gly Arg Val Val Ala Arg Pro Cys Pro Asp Phe Ile Asn			192
50	55	60	
ggg gtc aag tac aac agc acc agg agc gcg tat aga gaa tgc ctg gag Gly Val Lys Tyr Asn Ser Thr Arg Ser Ala Tyr Arg Glu Cys Leu Glu			240
65	70	75	80
aac ggc aca tgg gct ttc aag atc aac tac tcc agc tgc gag ccc att Asn Gly Thr Trp Ala Phe Lys Ile Asn Tyr Ser Ser Cys Glu Pro Ile			288
85	90	95	
tta gag gaa aag agg aag tac ccg gtc cac tac aag atc gct ctc atc Leu Glu Glu Lys Arg Lys Tyr Pro Val His Tyr Lys Ile Ala Leu Ile			336
100	105	110	
atc aac tat ttg gga cac tgc ata tct gta ggt gct ctc gtc atc gcc Ile Asn Tyr Leu Gly His Cys Ile Ser Val Gly Ala Leu Val Ile Ala			384
115	120	125	
ttc gtt ctc ttc ctg tgc ttg aga agc atc cgg tgt ttg cgg aat gta Phe Val Leu Phe Leu Cys Leu Arg Ser Ile Arg Cys Leu Arg Asn Val			432
130	135	140	
att cac tgg aat tta ata acc acc ttc atc ctg agg aac atc atg tgg Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Met Trp			480
145	150	155	160
ctt ctg ctg cag ctc atc gac cac aac atc cat gaa agg aac gag ccg Leu Leu Leu Gln Leu Ile Asp His Asn Ile His Glu Arg Asn Glu Pro			528
165	170	175	
tgg tgc cgc ctc ata acc acc gtc tat aac tat ttt gtg gtg acg aat Trp Cys Arg Leu Ile Thr Thr Val Tyr Asn Tyr Phe Val Val Thr Asn			576
180	185	190	
ttt ttc tgg atg ttc gtg gag ggc tgt tat ctt cac aca gcc atc gtt Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val			624
195	200	205	
atg acc tac tcc acc gac aag ctc cgg aag tgg gtc ttc ctc ttc atc Met Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Val Phe Leu Phe Ile			672
210	215	220	
ggg tgg tgt att ccg tgt ccg gtc atc att gcg tgg gcc gtc ggg aag Gly Trp Cys Ile Pro Cys Pro Val Ile Ile Ala Trp Ala Val Gly Lys			720
225	230	235	240
ctg tac aac gaa aac gaa cag tgc tgg ttt gga aaa gaa ccc gga aaa Leu Tyr Asn Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Lys			768
245	250	255	
tac gtg gac tac att tat cag ggt cct gtg att gtt gtt ctg ctg ata Tyr Val Asp Tyr Ile Tyr Gln Gly Pro Val Ile Val Val Leu Leu Ile			816
260	265	270	
aac ttc gtg ttc ctg ttc aac atc gta cgt att ctc atg acg aag ctg Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu			864
275	280	285	

cga gcc tcc acc acg tca gag acc ata cag tac agg aaa gcg gtg aag	912
Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys	
290 295 300	
 gcg acg tta gtg ctg ctt cct ctg ctc ggc atc aca tac atg ctg ttc	960
Ala Thr Leu Val Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe	
305 310 315 320	
 ttc gtg aat ccg ggg gat gat gac atc tca cag att gtc ttt att tat	1008
Phe Val Asn Pro Gly Asp Asp Asp Ile Ser Gln Ile Val Phe Ile Tyr	
325 330 335	
 ttc aat tcc ttc ctg cag tcc ttt cag ggt ttc ttc gtc tca gtg ttt	1056
Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe	
340 345 350	
 tac tgc ttc ctc aac ggt gag gta cgg tca gca gta agg aaa cgt tgg	1104
Tyr Cys Phe Leu Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg Trp	
355 360 365	
 cac aga tgg cag gat aac cac gct ctc cgt gtt cgg gtt gcc agg gcg	1152
His Arg Trp Gln Asp Asn His Ala Leu Arg Val Arg Val Ala Arg Ala	
370 375 380	
 atg tcc atc cca aca tca cct act cgc atc agc ttc cac agc att aaa	1200
Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys	
385 390 395 400	
 cac acc acc gct gtg tga	1218
His Thr Thr Ala Val	
405	
 <210> 38	
<211> 405	
<212> PRT	
<213> Ameiurus nebulosus	
 <400> 38	
 Met Glu Val Ser Leu Leu Glu Leu Leu Ser Val Glu Val Asn Cys Ser	
1 5 10 15	
 Leu Ala Asp Ala Phe Gly Asp Pro Ala Tyr Gly Asn Ala Ser Asp Ala	
20 25 30	
 Leu Tyr Cys Asn Ala Thr Ala Asp Glu Ile Gly Thr Cys Trp Pro Arg	
35 40 45	
 Ser Gly Ala Gly Arg Val Val Ala Arg Pro Cys Pro Asp Phe Ile Asn	
50 55 60	
 Gly Val Lys Tyr Asn Ser Thr Arg Ser Ala Tyr Arg Glu Cys Leu Glu	
65 70 75 80	

Asn Gly Thr Trp Ala Phe Lys Ile Asn Tyr Ser Ser Cys Glu Pro Ile
 85 90 95
 Leu Glu Glu Lys Arg Lys Tyr Pro Val His Tyr Lys Ile Ala Leu Ile
 100 105 110
 Ile Asn Tyr Leu Gly His Cys Ile Ser Val Gly Ala Leu Val Ile Ala
 115 120 125
 Phe Val Leu Phe Leu Cys Leu Arg Ser Ile Arg Cys Leu Arg Asn Val
 130 135 140
 Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Met Trp
 145 150 155 160
 Leu Leu Leu Gln Leu Ile Asp His Asn Ile His Glu Arg Asn Glu Pro
 165 170 175
 Trp Cys Arg Leu Ile Thr Thr Val Tyr Asn Tyr Phe Val Val Thr Asn
 180 185 190
 Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val
 195 200 205
 Met Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Val Phe Leu Phe Ile
 210 215 220
 Gly Trp Cys Ile Pro Cys Pro Val Ile Ala Trp Ala Val Gly Lys
 225 230 235 240
 Leu Tyr Asn Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Lys
 245 250 255
 Tyr Val Asp Tyr Ile Tyr Gln Gly Pro Val Ile Val Val Leu Leu Ile
 260 265 270
 Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu
 275 280 285
 Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys
 290 295 300
 Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe
 305 310 315 320
 Phe Val Asn Pro Gly Asp Asp Ile Ser Gln Ile Val Phe Ile Tyr

325

330

335

Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe
 340 345 350

Tyr Cys Phe Leu Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg Trp
 355 360 365

His Arg Trp Gln Asp Asn His Ala Leu Arg Val Arg Val Ala Arg Ala
 370 375 380

Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys
 385 390 395 400

His Thr Thr Ala Val
 405

<210> 39

<211> 1248

<212> DNA

<213> Bos taurus

<220>

<221> CDS

<222> (1)..(1248)

<400> 39

atg gga cgg cgc ccg cag ctc cgg ctt gtc aag gcc ctt ctc ctc ctg
 Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu
 1 5 10 15

48

ggg ctg aac tcc atc tct gcc tcc ctc cag gac cag cat tgc gag agc
 Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser
 20 25 30

96

ttg tcc gtg gcc agc aac gtc tct gga ctg cag tgc aat gct tcc gtg
 Leu Ser Val Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val
 35 40 45

144

gac ctt att ggt acc tgc tgg ccc cag agt cct gca ggg cag ttg gtg
 Asp Leu Ile Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val
 50 55 60

192

gtt cga ccc tgc ctc gta ttt ttc tat ggt gtc cgc tac aat acc aca
 Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr
 65 70 75 80

240

aac aac ggc tac cgg gag tgc ctg gcc aat ggc acg tgg gcc gcc cgc
 Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg
 85 90 95

288

gtg aac tac tcc gag tgc caa gag atc ctc agc gag gag aag aag agc
 Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Ser Glu Glu Lys Lys Ser
 100 105 110

336

aag gtg cac tac cac atc gct gtc atc atc aac tac cta ggc cac tgc Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys 115 120 125	384
atc tcc ctg gcg gcc ctc ctg gtg gcc ttt gtc ctc ttt ctg cggt Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu 130 135 140	432
agg agc atc cgg tgc ctg aga aac atc atc cac tgg aac ctc atc tca Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser 145 150 155 160	480
gcc ttc atc ctg cgc aat gcc acg tgg ttc gtg gtc cag ctc acc atg Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met 165 170 175	528
agc ccc gaa gtc cat cag agc aac gtg ggc tgg tgc agg ctg gtg aca Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr 180 185 190	576
gcc gcc tac aac tac ttc cac gtg acc aac ttc ttc tgg atg ttc ggt Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205	624
gag ggc tgc tac ctg cac acg gcc atc gtg ctc acg tac tcc aca gac Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp 210 215 220	672
cgg ctg cga aag tgg atg ttt atc tgc atc ggc tgg ggt gtg cct ttc Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe 225 230 235 240	720
ccc atc att gtg gcc tgg gcc att ggg aag ctg tac tac gac aat gag Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255	768
aag tgc tgg ttt ggc aaa agg cct ggg gtg tac act gac tac atc tac Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr 260 265 270	816
cag ggc ccg atg atc ttg gtc ctg ctg atc aat ttc atc ttc ctt ttc Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
aac atc gtc cgc atc ctc atg acc aaa ctc cgg gca tcc acc acc tct Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser 290 295 300	912
gag acc att cag tac agg aag gct gtg aag gcc act ctg gtg ctg ctc Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
ccc ctc ctg ggc atc acg tac atg ctg ttc ttc gtg aac cct ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu 325 330 335	1008
gac gag gtc tcc agg gtc gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu 340 345 350	1056
tct ttc cag ggc ttc ttc gtg tct gtg ttc tac tgc ttc ctc aac agc	1104

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser			
355	360	365	
gag gtc cgc tct gcc atc cg ^g aag agg tgg cac cgc tgg cag gac aag 1152			
Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys			
370	375	380	
cac tca atc cgt gcc cgc gtg gct cgc gcc atg tcc atc ccc acc tcc 1200			
His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser			
385	390	395	400
ccc acc cgt gtc agc ttt cac agc atc aag cag tcc aca gca gtg tga 1248			
Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val			
405	410	415	
<210> 40			
<211> 415			
<212> PRT			
<213> Bos taurus			
<400> 40			
Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu			
1	5	10	15
Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser			
20	25	30	
Leu Ser Val Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val			
35	40	45	
Asp Leu Ile Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val			
50	55	60	
Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr			
65	70	75	80
Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg			
85	90	95	
Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Ser Glu Glu Lys Lys Ser			
100	105	110	
Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys			
115	120	125	
Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu			
130	135	140	
Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser			
145	150	155	160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp
210 215 220

Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe
225 230 235 240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu
245 250 255

Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr
260 265 270

Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe
275 280 285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser
290 295 300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu
305 310 315 320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu
325 330 335

Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu
340 345 350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser
355 360 365

Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys
370 375 380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser
385 390 395 400

Pro	Thr	Arg	Val	Ser	Phe	His	Ser	Ile	Lys	Gln	Ser	Thr	Ala	Val
405									410					415
<210> 41														
<211> 1422														
<212> DNA														
<213> Gallus gallus														
<220>														
<221> CDS														
<222> (138)...(1400)														
<400> 41														
tcacaggagg	gttataaaag	gcagtgagtg	gggagcgggg	cacgcggagc	cacctgagca									60
cgaggatttg	gagcccccac	ggcagcggga	gcggagccgg	ccatgccccc	ggtcgttggg									120
tgcggaggg	gctaagg	atg	gtg	ccc	ggc	ccg	cgt	cct	gcc	ctc	ctc	ctc		170
		Met	Val	Pro	Gly	Pro	Arg	Pro	Ala	Leu	Leu	Leu		
		1		5						10				
ctc	ctc	ttt	ctc	ctg	cag	gcf	ttt	ctc	ctc	tgg	gat	agt	ccc	gtt
Leu	Leu		Leu	Leu	Gln	Ala	Phe	Leu	Leu	Trp	Asp	Ser	Pro	Val
15			20								25			218
gcc	tcc	atc	caa	gag	cag	tac	tgt	gag	agc	ctg	ctg	ccc	acc	acc
Ala	Ser	Ile	Gln	Glu	Gln	Tyr	Cys	Glu	Ser	Leu	Leu	Pro	Thr	Thr
30			35								40			266
cac	aca	gga	cct	cag	tgc	aac	gcc	tcg	gtg	gac	ctg	att	ggc	acg
His	Thr	Gly	Pro	Gln	Cys	Asn	Ala	Ser	Val	Asp	Ile	Gly	Thr	Cys
45			50							55				314
tgg	ccc	cgc	agt	gca	gtg	gga	caa	ctg	gtg	gct	cg	ccc	tgc	ccc
Trp	Pro	Arg	Ser	Ala	Val	Gly	Gln	Leu	Val	Ala	Arg	Pro	Cys	Pro
60			65						70			75		362
tat	ttc	tac	ggc	gtg	cgg	tac	aac	acc	aca	aac	aat	ggc	tac	agg
Tyr	Phe	Tyr	Gly	Val	Arg	Tyr	Asn	Thr	Thr	Asn	Asn	Gly	Tyr	Arg
80			85								90			410
tgc	ctc	gct	aac	ggg	agc	tgg	gca	gca	cgg	gtc	aac	tac	tcc	cag
Cys	Leu	Ala	Asn	Gly	Ser	Trp	Ala	Ala	Arg	Val	Asn	Tyr	Ser	Gln
95								100			105			458
cag	gag	atc	ctc	agt	gag	gag	aag	agg	agc	aag	ctg	cac	tac	cac
Gln	Glu	Ile	Leu	Ser	Glu	Glu	Lys	Arg	Ser	Lys	Leu	His	Tyr	His
110			115							120				506
gct	gtc	atc	atc	aac	tac	ctg	ggg	cac	tgc	gtc	ctg	ggg	acc	ctc
Ala	Val	Ile	Ile	Asn	Tyr	Leu	Gly	His	Cys	Val	Ser	Leu	Gly	Thr
125			130							135				554
ctt	gtg	gcc	ttc	gtc	ctc	ttc	atg	cgc	ctg	cgg	agc	atc	cgg	tgc
Leu	Val	Ala	Phe	Val	Leu	Phe	Met	Arg	Leu	Arg	Ser	Ile	Arg	Cys
140			145						150			155		
agg	aac	atc	atc	cac	tgg	aac	ctg	atc	aca	gcc	ttc	atc	cta	cgc
Arg	Asn	Ile	Ile	His	Trp	Asn	Leu	Ile	Thr	Ala	Phe	Ile	Leu	Arg
														650

160	165	170	
gcc acg tgg ttt gtg gtg cag ctc acg atg aac cca gag gtg cac gag Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro Glu Val His Glu 175	180	185	698
agc aac gtg gtc tgg tgc cgc ttg gtc act gct gcc tac aat tac ttc Ser Asn Val Val Trp Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe 190	195	200	746
cat gtc acc aac ttc ttc tgg atg ttt ggc gag ggc tgc tac ctg cac His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His 205	210	215	794
aca gcc atc gtc ctc acc tat tcc acc gac aag ctc cgc aag tgg atg Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Met 220	225	230	842
ttc atc tgc att ggc tgg tgt atc ccc ttt ccc atc att gtc gcc tgg Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp 240	245	250	890
gcc atc ggg aag ctg tac tac gac aac gag aag tgc tgg ttt ggg aag Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys 255	260	265	938
cga gca gga gtt tat act gac tac atc tat caa ggt ccc atg atc ctg Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu 270	275	280	986
gtg ctt ctg atc aac ttc atc ttt ctg ttc aac att gtt cggtt att ctc Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu 285	290	295	1034
atg acc aag ctc cga gca tca acc acg tca gag aca atc cag tac aga Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg 300	305	310	1082
aaa gca gtc aag gct acg ctg gtg ctg ctg tcc ttg ctg gga atc acc Lys Ala Val Lys Ala Thr Leu Val Leu Leu Ser Leu Leu Gly Ile Thr 320	325	330	1130
tac atg ctg ttc ttt gtc aat ccg ggg gag gat gag atc tcc agg atc Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Ile Ser Arg Ile 335	340	345	1178
gtc ttc atc tac ttc aac tcc ttc ctg gag tcc ttc cag ggc ttc ttt Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe 350	355	360	1226
gtc tct gtc ttc tac tgc ttc ctg aac agc gag gtg cgt tcg gct gtg Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Val 365	370	375	1274
cggtt aag cgg tgg cac cga tgg cag gac aag cac tcc atc cgc gct cgg Arg Lys Arg Trp His Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg 380	385	390	1322
gtg gct cgg gcc atg tcc atc ccc acc tcc cca acc cgg gtc agc ttc Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe 400	405	410	1370

cac agc atc aag cag tcc tca gca gtg tga ggcaggagga ggcagctgcc ga 1422
His Ser Ile Lys Gln Ser Ser Ala Val
415 420

<210> 42
<211> 420
<212> PRT
<213> Gallus gallus

<400> 42

Met Val Pro Gly Pro Arg Pro Ala Leu Leu Leu Leu Leu Phe Leu Leu
1 5 10 15

Gln Ala Phe Leu Leu Trp Asp Ser Pro Val Ala Ala Ser Ile Gln Glu
20 25 30

Gln Tyr Cys Glu Ser Leu Leu Pro Thr Thr Asn His Thr Gly Pro Gln
35 40 45

Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Ala
50 55 60

Val Gly Gln Leu Val Ala Arg Pro Cys Pro Glu Tyr Phe Tyr Gly Val
65 70 75 80

Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly
85 90 95

.
Ser Trp Ala Ala Arg Val Asn Tyr Ser Gln Cys Gln Glu Ile Leu Ser
100 105 110

Glu Glu Lys Arg Ser Lys Leu His Tyr His Ile Ala Val Ile Ile Asn
115 120 125

Tyr Leu Gly His Cys Val Ser Leu Gly Thr Leu Leu Val Ala Phe Val
130 135 140

Leu Phe Met Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His
145 150 155 160

Trp Asn Leu Ile Thr Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val
165 170 175

Val Gln Leu Thr Met Asn Pro Glu Val His Glu Ser Asn Val Val Trp
180 185 190

Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe
195 200 205

Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu
210 215 220

Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Met Phe Ile Cys Ile Gly
225 230 235 240

Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu
245 250 255

Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Ala Gly Val Tyr
260 265 270

Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn
275 280 285

Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg
290 295 300

Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala
305 310 315 320

Thr Leu Val Leu Leu Ser Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe
325 330 335

Val Asn Pro Gly Glu Asp Glu Ile Ser Arg Ile Val Phe Ile Tyr Phe
340 345 350

Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr
355 360 365

Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Val Arg Lys Arg Trp His
370 375 380

Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met
385 390 395 400

Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln
405 410 415

Ser Ser Ala Val
420

<211> 38
<212> PRT
<213> Mus musculus

<400> 43

Val Ile Leu Ser Leu Asp Val Pro Ile Gly Leu Leu Arg Ile Leu Leu
1 5 10 15

Glu Gln Ala Arg Tyr Lys Ala Ala Arg Asn Gln Ala Ala Thr Asn Ala
20 25 30

Gln Ile Leu Ala His Val
35

<210> 44
<211> 38
<212> PRT
<213> Homo sapiens

<400> 44

Ile Val Leu Ser Leu Asp Val Pro Ile Gly Leu Leu Gln Ile Leu Leu
1 5 10 15

Glu Gln Ala Arg Ala Arg Ala Ala Arg Glu Gln Ala Thr Thr Asn Ala
20 25 30

Arg Ile Leu Ala Arg Val
35